

Ownership Structure and Firm Performance:
An Empirical Analysis of the Listed Firms in China

by
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Submitted in partial fulfilment of the requirements of the Degree of Doctor of Philosophy

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ABSTRACT

The thesis aims to investigate the relationship between the ownership structure and listed firms' performance in the Chinese business group. In this thesis, I firstly contribute to the ownership structure literature by hand-collecting the ownership data and developing a new ownership classification in the listed firms of China. Secondly, I contribute to the corporate finance literature by providing the analysis of the relationship between ownership structure and various firm performances. Thirdly, I contribute to the literature on the business group by providing an empirical analysis of ownership and performance outcomes and contribute to the agency theory literature by showing the agency conflicts between the ultimate controlling shareholders and minority shareholders. The sample in the thesis includes 3,077 firms and 27,077 firm-year observations over the period from 2003 to 2016. To systematically connect the relationship between ownership and performance outcomes with structural characteristics of business groups, I investigate the effects of ownership structure on firm performance from three angles: the types of ultimate controllers, direct controlling ownership and administrative levels and functions of state ultimate control. The results in the thesis present that with the support of the government, the listed firms controlled by Central State-owned Assets Supervision and Administration Commission (SASAC) and Asset Bureau have higher firm outputs than others. Few of largest shareholders in the state-owned enterprises have a significant impact on firm performance. The SASAC and high administrative-level governmental agencies as ultimate controllers positively impact firm output. The state controllers at Central or Municipal levels have positive impacts on firm employment. From the findings of this thesis, the policymakers could know privatisations decline the employment and output of large state-owned listed firms. The investors should give great attention to the state-owned listed firms since the largest shareholders cannot decide the development direction of the firms and must follow the instruction from the ultimate controllers.

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Chapter 1 Introduction

1.1 Motivations

Business groups are broadly defined as the integration of legally independent companies through various formal and informal relations (Granovetter, 1995, 2005; Khanna and Yafeh, 2007). They are important participants in developed markets (Colpan and Hikino, 2016; Shiba and Shimotani, 1997). One of the foundations of business groups literature is the research related to group ownership. Morck (2010) shows that large business sectors in many countries are controlled by the wealthy, which comprise the business groups. Colpan and Hikino (2010) also examine 14 emerging economies and find a similar result in that family is the major controlling shareholder of business groups there. The literature has studied the complex relationships between the ownership of business groups and the performance outcomes under such ownership. Cuervo-Cazurra (2006) suggests that the ownership characteristics of business groups have an effect on their performance outcomes, and differences in performance have been recognised among different typologies of business groups, so nature of the ownership and its influence on the performance of the group deserves more attention. A comprehensive study should consider different conceptual dimensions of performance, including non-financial performance, which could be the principal goal of some types of owners. It has been implied in the literature that ownership types are related to strategic goals (Cuervo-Cazurra, 2006; Mayer and Whittington, 1996). This attracted my attention, and made me wish to study the how the performance of listed firms in China is related to different ownership structures and how the political goals assigned by the government affects firm performance outcome.

Sutherland, Ning and Beatson (2011) show that the Chinese business groups were forming pyramidal structures. In a pyramidal business group, the controller of the group has the ultimate

control rights over its affiliations, such as the affiliated listed firms. Morck, Wolfenzon and Yeung (2005) discuss that the political influence depends on who controls rather than who owns. The controllers of pyramids have tremendous power to amplify political impact. From this several questions emerge. The first question is whether the controller, the entity who controls a business group has a significant effect on its affiliated listed firm's performance. State agencies in China have distinguished objectives when managing the listed firms, such as output missions for the large firms and employment missions for the central-level firms. It is therefore worthy of investigating the effects of different types of controllers on listed firm performance. The second question is whether the direct controlling shareholder (the largest shareholder), the entity who owns the listed firm, has a significant effect on the firm's performance. The direct controlling shareholder needs to follow the instructions of the controller and cannot solely decide the development of the listed firm. This raises the question of how the direct controlling shareholders influence listed firm performance. The third question is how the administrative levels and functions of state controllers in business groups affect the firm performance. State-owned business groups in China are significantly influenced by the government, which provides financial support and exclusive privileges for these groups, to promote their development. There are agency conflicts in the state-owned business group (Colli and Colpan, 2016), which may vary due to the forms and administrative levels of governmental agencies. This raises the question of how the differences among governmental agencies are related to firm performance. Therefore, I investigate the ownership structure of Chinese business groups through three themes, namely the ultimate controllers of the business groups, who control the business groups; the direct controlling shareholders (the largest shareholder) of the affiliated listed firms, who owns the listed firms; and the administrative levels and functions of state controllers in Chinese business groups and their ownership of the listed firms. The above three issues are addressed in the three empirical chapters of my thesis.

The relationships between ownership structure and firm performance in listed firms are of significant concerns to owners who are focusing on improving firm performance. Central to this relationship is agency problems, which explains the conflicts of interests between controllers and managers/minority shareholders. The information asymmetry and interests' divergence between these two parties results in the problems that can harm firm performance. The finance literature describes two types of agency problems. One agency problem lies in the conflicts between owners and managers (Jensen and Meckling, 1976) and the other agency problem refers to the conflicts between controlling and minority shareholders (Dharwadkar, George and Brandes, 2000). The former usually occur in developed economies, because ownership and control are often separated, and owners' interests are protected by legal regulations. However, in developing countries, the second type of agency problem becomes a more serious issue, which is due to the existence of concentrated ownership and the absence of effective external governance mechanisms (Young et al., 2008). The controlling shareholder has significant power of control over the agent, whose interests are forced to be aligned with the controlling shareholders', and expropriates minority shareholders (Yao, Xu and Liu, 2010). As a developing economy, China faces the second type of agency problem (Lin, Fu and Fu, 2021). Compared with Western companies, Chinese firms suffer more severe agency problems because of controlling shareholders' notable ownership and control over firms' management (Johnson et al., 2000), inadequate protection for minority investors and underdeveloped capital markets (Allen, Qian and Qian, 2005).

The opening of the Shanghai and Shenzhen Stock Exchanges in 1990 and 1991 was China's most significant move toward market-oriented reform and privatisation, but at that time, only a third of the listed firms' shares were tradable (Liao, Liu and Wang, 2014), which is due to the split-share structure of Chinese listed firms. A split-share structure involves two classes of

shares, namely tradable and non-tradable shares. Non-tradable shares are state and legal persons owned, while the tradable shares are owned by domestic individual investors and domestic and foreign institutional investors (Jiang and Kim, 2015). Appendix A shows the split share structure and the proportion of non-tradable and tradable shares in listed firms from 2003 and 2012. The split share structure allows the government to retain control over firms but also use market mechanisms to regulate and discipline them. Under the split share structure, the interests of tradable and non-tradable shareholders diverges because of the different pricing mechanisms of these two share-types. The price of tradable shares is determined by the market mechanisms, but non-tradable shares are priced according to the book value of firm assets. The shareholders with non-tradable shares were unable to benefit from capital earnings, so they had little incentive to improve the firms' performance. The Chinese government gradually realised that market liberalisation would not succeed without completely abandoning the split-share structure. The official start of the Split Share Reform is characterised by the Notice of the China Securities Regulatory Commission on Piloting the Share-Trading Reform of Listed Firms on April 30, 2005. The reform aimed to transform all non-tradable shares into legitimate tradable shares by paying negotiated compensation to tradable shareholders (Liao, Liu and Wang, 2014). Jiang and Kim (2015) point out that the opening of the stock markets in the early 1990s and the Split Share Reform in 2005 are the two most significant reforms during the privatisation process in China. In 2003, the average proportion of shares that were tradable by the firm was only 39.8%. By 2007 more than half the firms had more tradable shares than non-tradable shares. Specifically, the average proportion of shares that were tradable by the firm was 53.8%. By 2012, the majority of shares were tradable in more than half of the firms, with the average proportion of tradable shares at 76.5% (Jiang and Kim, 2015).

The ownership of the listed firms in China is concentrated in the hand of the state. The state held around 40% of the total equity capital of listed companies in 2017 (Cruz, Medina and Tang, 2019). Meanwhile, the state owned less than 10% of the total equity capital of listed companies in the United States, the United Kingdom and Canada. Institutional investors dominated the ownership of listed companies in the United States, the United Kingdom and Canada. In these developed countries, the average combined shareholdings held by a company's ten largest institutional investors was more than 29% of the company's equity capital in 2017(Cruz, Medina and Tang, 2019). In other developing countries, such as the Philippines and Turkey, the state owned less than 20% of the total equity capital of listed companies. Private companies were the major shareholders in these developing countries, where they owned 48% and 40% of the equity capital in listed firms.

China's economy has experienced a significant expansion in recent years, attributed to the economic reforms of the last two decades. The average growth rate of GDP was 11% from 2000 to 2010 with a peak point of 14.2% in 2007 (Shenzhen CSMAR Data Technology Co., 2017). The state-owned enterprises (SOE) are the main force and closely connected with the reform as they are the largest economic system in China. The fraction of SOEs among all the non-financial listed firms was 74.37%, 65.07%, 56.29%, 41.74% and 37.36% in 2003, 2006, 2009, 2012 and 2015 respectively (Shenzhen CSMAR Data Technology Co., 2017). Thus, it can be seen that the SOEs are made up more than half of the listed firms before 2009. SOEs also occupy the dominant position in most major industries and key areas, such as high-speed rail, nuclear power, aerospace, aviation, shipbuilding, automobile construction, communication, electric power, military equipment, oil and gas, banking, insurance etc. SOEs bear the major economic, political and social responsibility, and are the major sources of the national finance. The performance of the SOEs is the main concern of the government. The owners of the listed

firms decide the development of the firms and have significant impacts on firm performance. State-controlled and privately controlled firms have different operating objectives due to the nature of their owners. Clarke (2003) argues that state-controlled firms have various objectives, such as maximizing shareholders' wealth, maintaining employment levels, and controlling crucial industries. It is worthwhile to study how different types of controllers of listed firms affect firm performance how the ownership concentration influences the relationship between the controllers and firm performance.

1.2 Research Question

Previous literature about the ownership structure of Chinese listed firms either uses share type to represent the ownership which obscures the real owners of the shares (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) or fails to distinguish the state-controlled listed firms by functions and objectives, or the administrative levels (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). Lumping all types of state ownership into one cannot present the different effects of various government agencies, such as the varied performances of central and local state-owned firms regarding central government policy. There is therefore a gap in the literature regarding the provision of clear, accurate and detailed classification of ownership structure in Chinese listed firms. To fill this gap, I develop a new classification of the ownership in China's listed firms, based shareholders' administrative levels, functions and objectives.

The classification scheme in thesis is developed by following two principles: identifying the shareholders and distinguishing their objectives. The Chinese government has assigned different objectives for the state agencies. For example, the major mission for the large central state-owned enterprises is output. The government provides sufficient supports to promote

these enterprises to become the pillars in important industries, allowing the government to totally control over the economy. The government also cares about social stability, so it gives the social mission to Central and Municipal state-owned enterprises, such as absorbing unemployment or maintaining supplement prices. Other state agencies, such as the Central Asset Bureau, can enjoy the support of the government but do not need to carry out social responsibilities in return. The motivations of these entities are different when they operate the listed firms, so they need to be distinguished.

The new scheme I developed in the thesis classifies the shareholders into four major categories, state, foreign, private and other. The state ownership is further divided into 14 sub-categories based on the administrative level, function and objective, namely Central State-owned Enterprise, Local State-owned Enterprise, Central Department, Provincial Department, Municipal Department, Central Asset Bureau, Provincial Asset Bureau, Municipal Asset Bureau, Central SASAC, Provincial SASAC, Municipal SASAC, Provincial Government, Municipal Government, Public Institution. The foreign category includes Foreign Individual and Foreign Enterprise. The private category comprises Private Individual and Private Enterprise. Other ownership such as Operating Unit, Collectively-owned Enterprise and Social Organisation are classified into 'Other'. The scheme not only identifies the actual owners of a certain type of shares but also separates state ownership to provide an accurate and comprehensive analysis of the effect of state and agencies.

Governments at different levels have diversified objectives. The central enterprises are obligated to promote national industrial and welfare policies and are much more socially-oriented than local enterprises and private firms. Also, central enterprises in China are concentrated in the national heavy industries with little competition, whereas local enterprises

face more competition from private firms. On the one hand, the central government and agencies focus on macro-level economic development and social welfare maximisation, and maintain substantial control over personnel appointments. On the other hand, local governments and agencies are given essential control rights and resources to develop the economy at their own discretion (Lin, Fu and Fu, 2021). To improve the incentives of local officials undertaking market-oriented measures to develop the local economy, the central government uses a regional competition mechanism to link regional performance to local officials' promotions (Xu, 2011). The central SOEs benefit from more preferential policies, such as cheaper access to credit and easier access to resources, than the local and private companies (Li, Cui and Lu, 2014). In contrast, local governments have the autonomy to operate their local enterprises with the objectives of promoting local economic development. Consequently, local SOEs are more profit-oriented in order to serve the local economic development objectives (Li, Cui and Lu, 2014). In addition, the economic development objective drives local governments to improve local SOEs' financial performance to maximize profits (Lin, Fu and Fu, 2021). Moreover, local SOEs are scattered in non-strategic industries, such as manufacturing and social services. Hence, unlike central SOEs, which can obtain monopolistic privileges, local SOEs are less able to gather resources to promote output. Local SOEs also benefit from the access to monetary and credit policies regardless of the uncertainty implicit in risky investment projects. The regulations formulated by the government, allow local SOEs to reduce the risk of their investment. Thus, local SOEs are both more likely and more willing to take risk to finance and invest compared with private firms.

Secondly, among the governmental agencies, asset management entities and other governmental departments need to be distinguished. Asset management entities refer to the central and local SASAC (State Asset Supervision and Administration Commission) and other

asset management bureaus. SASAC and local SASACs are the most common asset management bureaus in China. The SASAC is a commission in China and the only ad hoc governmental agency directly under the state council (SASAC Website, 2018a). The SASAC performs investor's responsibilities, supervises, operates and enhances the management of the state-owned assets. SASAC has the responsibility of supervising the preservation and increment of the value of the state-owned assets; guiding and promoting the reform and restructuring of state-owned enterprises; improving corporate governance; and driving the strategic adjustment of the layout and structure of the state economy. SASAC should establish laws and regulations on the management of the state-owned assets and also has the rights to appoint or dismiss the executives of its supervised enterprises and evaluate performances through legal procedures. SASAC can build the corporate executives' selection system in accordance with the requirements of the socialist market economic system and develop incentives and restraint mechanism for firm management. In sum, SASAC is acting on behalf of the state council and exercise daily management and supervision.

However, other ministries, such as the Ministry of Finance, may have different responsibilities. At a conference on 28th July 2017, the deputy minister announced that the Ministry of Finance would focus on three aspects to promote the reform (Li and Zhao, 2017). First, the Finance Ministry carries out five principal tasks: appropriating the pension for the adjustment of industrial enterprise structure over time, supporting the personnel placement when cutting overcapacity in the steel and coal industries; perfecting the subsidy policy of the corn and soybean industries; promoting the de-stocking of real estate; implementing the tax reductions to help decrease the enterprise cost; deepening work against poverty and other crucial socially-oriented work. Second, the Finance Ministry promotes the agricultural supply-side reform, providing subsidies to the production, process and brand-building for qualified agrarian

products. Third, the Ministry promotes the economic transformation and upgrade with innovation: supporting fundamental research and the conversion of old to new energy. Thus government departments like the Finance Ministry follow the requirements of the Party Central Committee and the State Council in implementing the task-based methods to help and promote economic reform and transformation, while the SASAC is responsible for operating state-owned assets.

To systematically connect the relationship between ownership and performance outcomes with structural characteristics of business groups, I firstly study the effects of different types of ultimate controllers on performance, namely the relationship between the business groups' owners and performance outcome. Then I investigate the effects of different types of largest shareholders on firm performance, and the effects of the interaction between the largest shareholder and their direct controlling ownership on firm performance, namely the relationship between the direct controlling shareholders and performance outcome. The previous literature has demonstrated that concentrated ownership either uses controlling power to pursue private benefits and worsens agency conflicts (Shleifer and Vishny, 1986; Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998; Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009; Jiang et al., 2018) or mitigates agency conflicts and improves the firm's efficiency (Barclay and Holderness, 1989; Zwiebel, 1995; Pagano and Roell, 1998; Bloch and Hege, 2001; Gomes and Novaes, 2006). But none of them investigate the effects of concentrated ownership on performance outcomes within the perspective of business groups. In the business group, the control rights from the concentrated ownership are ultimately exercised by the owner of the group. The direct controlling shareholder (the largest shareholder) of the listed firm holds the shares on behalf of the ultimate controller and must follow the instructions of the controller, so the direct controlling shareholder (the largest shareholder) cannot exercise control over the firm decisions.

Finally, I investigate the effects of the administrative levels and functions of state ultimate controllers on firm performance, and the effects of the interaction between the administrative levels and functions of state ultimate controllers and ultimate controlling ownership on firm performance, namely the relationship between the ultimate controlling shareholders and performance outcome. Liu and Sun (2005) show the significance of tracing the ultimate shareholding structure when studying firms in China and argue that using only the direct ownership data from listed Chinese firms is insufficient to capture the real nature of the controlling shareholder. In this thesis, I use the ultimate controlling ownership as well as the direct controlling ownership to estimate the relationship between state ownership and firm performance.

1.3 Contribution

The first contribution of this thesis is to identify twenty-one different types of shareholders within the business groups, fourteen of which are new and relate to state ownership, based on their administrative levels, functions and objectives. Previous literature adopted an unofficial mechanism - share types - to represent each kind of ownership. The literature treated the owners who held state shares as the state ownership, those held legal person shares as the legal person ownership and those held tradable A shares as individual/private ownership (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010). This classification fails to identify the real owners with distinguished objectives and functions, and at different administrative levels. I use hand-collected data to develop a new classification that helps differentiate the functions among state agencies. In addition, I use different administrative levels such as state, provincial and municipality level as another dimension in this new classification. This thesis contributes to the ownership structure literature firstly by developing a detailed classification of the ownership in Chinese listed firms.

Secondly, a caveat in previous work is that performance measures are limited to mainly financial performance. The characteristics of ownership and its impact on the strategies and performance of the business group need more attention. Differences in performance have been investigated between business group-affiliated firms and stand-alone firms (Khanna and Rivkin, 2001) and among different types of business groups (Cuervo-Cazurra, 2006). However, current research fails to extend the scope of performance, which is mainly focusing on financial performance such as returns on assets (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). This is because the previous work treats state ownership as one variable without due attention to types and layers of state organisation and their distinct objectives. This thesis aims for a more comprehensive study, including different conceptual dimensions of performance, such as non-financial performance, which may be the principal objective of specific types of owners. State-controlled and privately controlled firms have different operating objectives due to the nature of their owners. It is argued that state-controlled firms have various objectives, such as maximising shareholders' wealth, maintaining employment levels and controlling important industries (Clarke, 2003). I construct the analysis with the understanding that the Chinese government has a holistic view and uses state apparatus carefully in integrating the market economy to their other targets.

Therefore, I contribute to the corporate finance literature by providing the estimations of ownership structure on various performance measures. The investigations in the thesis relate each administrative level of shareholders to different firm objectives, including not only financial performance but also employment, investment and productivity. As Cuervo-Cazurra (2006) suggests, a more comprehensive study should consider different conceptual dimensions of performance, including non-financial performance, which could be the principal goal of

some types of state owners. Both of financial and non-financial goals, which various ownership aims to pursue, helps to explain the role of controllers within the business group. This is my second contribution in the thesis.

Thirdly, the thesis contributes to the business group literature by providing an empirical analysis of the listed firms' ownership in the group and performance outcomes. The literature (Carney et al., 2018) has presented a theoretical framework of business groups with multiple potential outcomes. It is worth investigating how concentrated ownership, which is represented by the control of ultimate owners and their ownership, the direct controlling shareholders, namely largest shareholders, and their ownership in this thesis, affects the firm's outcomes in terms of their distribution among different types of shareholders. Furthermore, the thesis also contributes to the agency theory literature by shedding light on the agency conflicts between the ultimate controllers and minority shareholders. Specifically, the thesis provides clear and detailed classification for the controlling shareholders within the business groups, and shows whether their interests are aligned with those of minority shareholders.

1.4 Summary of findings

The ownership and performance data in this thesis is obtained from the Chinese Securities Market and Accounting Research (CSMAR) database. The sample in the thesis includes 3,077 firms, and 27,077 firm-year observations over the period from 2003 to 2016. The firm performance measures in the thesis comprise output, employment, profitability, labour productivity, investment and operating efficiency. I apply firm and year as the fixed effects to conduct regression analysis on the relationship between ownership and firm performance. To connect the relationship between ownership and performance outcomes with structural characteristics of business groups, I investigate the effects of ownership structure on firm performance from three aspects: the types of ultimate controllers, direct controlling ownership,

the administrative levels and functions of state ultimate control and ultimate controlling ownership. These estimations are presented in three empirical chapters respectively.

In the first empirical chapter (Chapter Two), I study the effects of different types of ultimate controllers on firm performance. Previous research shows the state ownership is negatively related to firm profitability (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021). However, when considering the new classification and taking into account the administrative levels and functions of the state controllers, the results are diverse. Central Asset Bureau as the ultimate controller has a positive effect on firm profitability. Its interest aligns with minority shareholders. It is necessary to separate different types of state ultimate controllers, as not all of them have to fulfil social responsibility at the cost of firm profitability. Also, most state ultimate controllers can increase firm employment when they control the listed firms, as they obey the instruction of the government to fulfil social responsibilities such as absorbing employees. With support from the government, the listed firms controlled by the Central SASAC or Asset Bureau have higher firm output than others. Furthermore, when the Provincial Department and Provincial SASAC are ultimate controllers, this has a positive effect on firm investment. The positive relationship between Provincial Department/SASAC and firm investment provides evidence that the ultimate controllers at the Provincial level have the access to sufficient capital for investment.

In the second empirical chapter (Chapter Three), I first study the effects of sixteen types of largest shareholders on firm performance and find that few of the largest shareholders have an impact on firm performance. Previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and Zhu, 2013; Liao, Liu and Wang, 2014; Liu, Wang and Zhu, 2021) finds significant effects of state ownership on firm performance. The difference

is because the reason that the literature does not study the types of direct controlling shareholders (the largest shareholders). In a business group, the direct controlling shareholders must follow the instructions of the ultimate controller and cannot decide the development direction and have limited impacts on firm performance. Then, I estimate the effect of the interaction between direct controlling ownership and the types of largest shareholders on firm performance. The results show that there is a positive influence of the interaction between the types of largest shareholders and direct controlling ownership on firm profitability and operating efficiency. However, the effects of direct controlling ownership are very limited. A 1% increase in the direct controlling ownership only affects less than 1% of firm performance. Therefore, the largest shareholder has few effects on firm performance, even when their ownership is increased.

In the third empirical chapter (Chapter Four), I study the effects of administrative levels and functions of state ultimate controllers on firm performance. The results show that the SASAC and high administrative-level governmental agencies as ultimate controllers have a positive effect on firm output. The state controllers at Central or Municipal levels as ultimate controllers have positive impacts on firm employment. The state controllers at the Municipal level as ultimate controllers have negative impacts on firm profitability, productivity, and operating efficiency. None of the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021) distinguish the state ultimate controllers with different objectives and at different administrative levels. I find that an increase of ultimate controlling ownership in the state-controlled listed firms can improve firm productivity and operating efficiency. I also investigate the effects of the interaction between firm hierarchy and state ultimate controller on firm performance. The results are not consistent across different performance measures. The extension of firm hierarchy could

improve the output of SASAC controlled listed firms, the employment of department, SASAC and SOE controlled listed firms, but also decrease the Tobin's Q of Government, Asset Bureau, SASAC, SOE and Public Institution controlled listed firms. At last, I study the effects of the interaction between state ultimate controllers and their control methods on firm performance. When the SASACs or the ultimate controllers at Central level obtain control rights through the largest shareholder, they provide strict supervision of the listed firm which leads to high employment and output. And the diversified control structure leads to better profitability in the Department-controlled listed firms and better profitability in the listed firms with controllers at Central level.

Policymakers can benefit from the findings of the thesis. Firstly, Governments could know that privatisations would reduce the employment, firm output and investment in the large state-owned listed firms. Without the support from government and access to capital, the former state-owned firms would suffer a decrease in employment, firm output and investment. It could be an efficient method to improve the output and investment of the local and small SOEs if the policymakers provide sufficient financial and political support for them. Secondly, the investors can know the largest shareholder cannot decide the development direction of the listed firms and must follow the instructions from the controller. It is the ultimate controller who makes decisions rather than the direct controlling shareholder (the largest shareholder). Thirdly, the regulator should know that increasing the controlling power of ultimate controllers can slightly improve the productivity and operating efficiency of state-owned listed firms. If the ultimate controllers, such as SASAC, wish to boost firm output and employment, they need to extend the internal control structure within the business group and centralise the ownership in one large shareholder.

The rest of the thesis is organised as follows. In chapter two I study the relationship between the ultimate controllers and firm performance. In chapter three I investigate the effects of direct controlling shareholders on firm performance. In chapter four I examine the relationship between the administrative levels and functions of state ultimate control and firm performance. Chapter five concludes the thesis.

Chapter 2 Ultimate Controller and Firm Performance in China

2.1 Introduction

Business groups emerge when the institutions are weak (Morck, 2010). They are the dominant amalgamation of large enterprises in many emerging markets (Colpan, Hikino, and Lincoln, 2010; Khanna and Palepu, 2010) and they help founders and group owners retain firm control over expanding businesses. Given their significant position in the economy and the political powers and relationships, the business groups can be maintained for the long term. In the case of China, the government needs the internal structure of business groups to maintain control over the large and super large listed firms and also use them to implement political missions. Colli and Colpan (2016) show that there are substantial agency conflicts in the state-owned business group. These conflicts often exist between the state as controlling shareholder and minority shareholders of the affiliated companies within a group (Colli, 2012a, 2012b). However, research on business groups controlled by the state is still in the early stages (Musacchio and Lazzarini, 2014). For example, in China, there is no conflict between controlling shareholders and managers. The management among the Chinese business groups is normally selected by the state controllers rather than elected by the board; they are the representatives of the state and follow instructions from the state. Cuervo-Cazurra (2006) suggests that the ownership characteristics of business groups have an effect on their performance outcomes. The nature of the ownership and its influence on the performance of the group deserves more attention. It is uncertain whether controlling shareholders behave in a way that favours minority shareholders. In the case of China, the country's administration has been committed, since the 1980s, to promoting a group of globally large companies to compete with those from developed countries.

The reform process in China can be viewed as having two outstanding stages (Jiang and Kim, 2015). The first stage was the opening of the stock markets in the early 1990s, which allowed for public ownership of stocks. The second stage was the Split Share Reform, which took place in 2005, transferring the non-tradable shares into tradable shares. In the reforms, most of the large listed companies belong to the state business group and are the core competitive enterprises in the group. The formation of this pattern is due to state-owned enterprise shareholding system reforms. The original enterprises were merged as groups, or high-quality assets of the original business group were integrated for listing. The state, as the owner of the business groups, is motivated to pursue non-profit objectives rather than the profitable ones. Also, state owners are scattered among different government agencies that have specific goals, such as output or employment, and are at different administrative levels. Therefore, I wished to investigate whether conflicts of interest exist among different group controllers and minority shareholders.

To systematically connect the relationship between ownership and performance outcomes with structural characteristics of business groups, the chapter starts by investigating the impacts of different types of ultimate controllers on firm performance. The chapter fills a gap in the literature, where previous researchers either use share type to represent the ownership which obscures the real owners of the shares (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) or fail to distinguish the state-controlled listed firms by function, objectives or administrative level (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021), by developing a new classification to identify the ultimate controllers of the business groups. This is the first contribution in the chapter.

The second gap in the previous literature is that performance measures are limited to mainly financial performance, such as returns on assets (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015), i.e. previous work treats state ownership as one variable without due attention to types and layers of state organisation and their distinct objectives. The characteristics of ownership, and their impact on the strategies and performance of the business group, need more attention. I therefore construct the analysis with the understanding that the Chinese government uses state apparatus carefully to integrate the market economy to their other targets. The investigations in the chapter relate each ultimate controller to different firm objectives, including not only financial performance but also employment, investment and productivity. Both the financial and non-financial goals that various owners aim to pursue help to explain the role of controllers within the business group.

Thirdly, the chapter contributes to the business group literature by providing empirical analysis about the listed firms' ownership in business group and performance outcomes. The literature (Carney et al., 2018) presents a theoretical framework of business groups with multiple potential outcomes. It is worth investigating how concentrated ownership, which is represented by the control of ultimate owners in this chapter, affects the firm's outcomes in terms of their distribution among different types of shareholders. Furthermore, the chapter also contributes to agency theory literature by shedding light on the agency conflicts between the controlling shareholders and minority shareholders. The chapter provides detailed classification for the controllers within the business groups, namely ultimate controllers, and shows whether there are interest conflicts between the ultimate controllers and minority shareholders. According to the Measures for the Administration of the Takeover of Listed Companies, a person/entity can actually control a listed firm if any one of the following conditions are satisfied (CSMAR): the

person/entity holds the largest number of shares of all registered shareholders, unless there is evidence that can prove the otherwise; the person/entity has the power to exercise or control more voting rights than those of the largest shareholder; the person/entity has the power to exercise or control 30% or more of the firm's shares or voting rights, unless there is evidence that can prove the otherwise; the purchaser has the power to decide the election of more than half of the directors; other circumstances as determined by the China Securities Regulatory Commission (CSRC).

In this chapter, I develop a new ownership classification based on shareholders' objectives and administrative levels. I obtain the ownership data from the Chinese Securities Market and Accounting Research (CSMAR) database and categorise the ultimate controllers into 21 types. The sample in this chapter includes 3,077 firms and 27,077 firm-year observations covering the period from 2003 to 2016. The firm performance measures in the chapter comprise output, employment, profitability, labour productivity, investment and operating efficiency. I use the firm and year as the fixed effect factors to build regression studying the effects of different types of ultimate controllers on firm performance. The previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021) show the state ownership is negatively related to firm profitability. However, the results in this chapter indicate that the Central Asset Bureau as the ultimate controller is positively related to firm profitability. This shows that it is crucial to identify different types of state ultimate controllers, since they have different objectives, and not all of them have to fulfil social responsibility at the cost of firm profitability. Also, state controllers follow instructions of the government to fulfil social responsibilities such as absorbing employees, increasing firm employment when they control the listed firms. With the support of the government, the listed firms controlled by Central SASAC or Asset Bureau have higher firm output than others. The

Provincial Department and Provincial SASAC also have positive effects on firm investment when they are the ultimate controllers. The positive relationship between Provincial controllers and firm investment presents evidence that the ultimate controllers at the provincial levels have access to sufficient capital for investment. Based on these findings, I suggest policymakers give great attention that privatisations would decline the large state-owned listed firms' employment, output, and investment, due to the withdrawal of government support and access to capital. Moreover, providing sufficient financial and political support for local and small SOEs could efficiently improve their output and investment.

The rest of the chapter is organised as follows. Section 2.2 is the review of literature on the ownership of the business groups and firm performance outcomes, the development of the Chinese market, and presents the research question of the chapter. Section 2.3 describes the data and methodology. Section 2.4 presents the empirical analysis and Section 2.5 concludes the chapter.

2.2 Literature Review

This section reviews the literature about business group ownership and firm performance outcome, introduces the development of the Chinese market and presents the gaps in the literature and the research question of the chapter. The literature (Carney et al., 2018) presents a theoretical framework of business groups with multiple potential outcomes. Under the framework, the outcome of the business groups could be positive or negative, since the business group is an efficient organisation to improve the institutional underdevelopment or becomes an obscure structure designed to expropriate minority shareholders. The chapter summarizes the finance literature looking at the conflicts between the controlling shareholders and minority shareholders, which is reflected in the group ownership and performance outcome (Morck, 2010).

2.2.1 Business Group Ownership and Performance Outcome

The sub-section introduces the literature about the business groups, then summarises the impact of business groups, the groups' ownership and performance outcomes, and the effects of different ownership types on firm performance.

Business groups are broadly defined as the integration of legally independent companies through various formal and informal relations (Granovetter, 1995, 2005; Khanna and Yafeh, 2007). They are the dominant amalgamation of large enterprises in many emerging markets (Colpan, Hikino, and Lincoln, 2010; Khanna and Palepu, 2010), but they are also important participants in developed markets (Shiba and Shimotani, 1997; Colpan and Hikino, 2016). National cases in which business groups emerge have been examined mainly from a contributory perspective. In Italy, business groups exist in every sector (Colli, Rinaldi, and Vasta, 2015), and they have solved problems by helping founders and families to retain firm control over expanding businesses (Amatori, 1997; Aganin and Volpin, 2005). Other scholars have shown that, in state-owned firms, business groups serve as an effective way to flexibly extend the limits of achieving political goals (Amatori, 1997; Colli and Vasta, 2015). Japanese business researchers indicate a connection between pre- and post-war corporate structures of large firms, explaining how the business groups balances family interests with managerial control, avoiding hostile takeovers (Morikawa, 1992). Similar considerations have been put forward for other European (Barca and Becht, 2001) and Asian countries (Amsden, 2001), characterised by an overwhelming spread of business groups.

2.2.1.1 The Impact of Business Groups

Carney et al. (2018) summarise the impact of business groups from two prominent theoretical perspectives: the institutional voids (IV) perspective (Khanna, 2000; Khanna and Palepu, 2000;

Khanna and Yafeh, 2007) and the entrenchment/exploitation (EE) perspective (Fogel, 2006; Morck, Wolfenzon and Yeung, 2005; Young et al., 2008). In the literature, the two perspectives are treated as opposites, which Khanna and Yafeh (2007) describe as ‘paragons or parasites’. IV treats business groups as an effective organisational response to institutional underdevelopment, while EE recognises business groups as obscure structures designed to extract benefit for owners at the expense of the shareholders. From the IV perspective, business groups use efficient internal capital and managerial markets to build and develop affiliates, use efficient internal labour markets to allocate personnel and develop known brands with high quality and reliability. Therefore, affiliates of these groups will perform better than non-affiliated companies, particularly in the underdeveloped institutional environment. For example, Sutherland, Ning and Beatson (2011) study productivity performance in Chinese business groups. They show that productivity was improved for firms within Chinese business groups.

From the EE perspective, the business groups use political bonds to achieve monopoly control over important resources and sectors, use their political connections to reduce competition and so to obtain favourable policies and employ complex ownership structures to redirect funds from affiliates to the ultimate owner at the expense of minority shareholders (Bae, Kang and Kim, 2002; Masulis, Phan and Zein, 2011; Siegel and Choudhury, 2012; Jia, Shi and Wang, 2013). The affiliates of business groups cannot out-perform the independent firms as because profits are diverted from the affiliates.

Carney et al. (2018) propose a theoretical framework for business groups with multiple potential outcomes. The framework brings two key elements into the analysis: the strength of the state and the adaptability of the groups themselves. The former refers to the ability and

commitment of the government to stimulate economic transformation through either the development of market-supporting institutions or government intervention (Wade, 1990; Musacchio, Lazzarini and Aguilera, 2015). The latter, the adaptability of the business groups, means the ability of business groups to adjust to global opportunities and threats. Under the framework, there are various possible outcomes for the business groups including being nationally competitive, moving to another country, collapsing or being absorbed and declining in value. The framework allows for different outcomes within a single country and over time, and provides an understanding of the evolution of business groups. For example, the Chinese state has transited from weak to strong by promoting market-supporting institutions and constitutional reforms since the leadership of Deng Xiaoping (Carney et al., 2018).

2.2.1.2 Group Ownership and Performance Outcome

The origins of the theoretical and systematic study of business groups date back to Leff's research (1976, 1978). Since then, the literature has evolved in emphasising four different aspects to explain the evolution and development of business groups. The first focuses on economics, where business groups are treated as a response to market imperfections (Ghemawat and Khanna, 1998; Leff, 1978). The second highlights industrial policy and connections between policymakers and local entrepreneurs to explain the formation of groups (Kim, 2010; Schneider, 2010). The third aspect, in the management literature, studies the development of business groups through the resources and capabilities of the entrepreneurs within them (Colpan and Hikino, 2010; Guillén, 2010). Last, the corporate finance literature examines the pyramidal variety of business groups where the dominant shareholders aim to develop their companies with limited capital. Business groups literature mainly aims at the exploitation of minority shareholders (Morck, 2010). While the studies aim to underpin the emergence and development of business groups in certain national settings, they also have implications for the strategies, structures as well as governance of business groups.

One of the core areas of business group literature is research related to group ownership. La Porta, Lopez-de-Silanes and Shleifer (1999) discuss that widely-held firms are rare outside the US and UK, with concentrated ownership being common elsewhere. They find that families and state are most frequently the controllers of large firms in 27 developed countries. In a more recent study, Morck (2010) shows that large business sectors in many countries are controlled by the wealthy, which can comprise the business groups. Colpan and Hikino (2010) also examine 14 emerging economies and find a similar result, in that family is the major controlling shareholder of business groups in those countries. La Porta, Lopez-de-Silanes and Shleifer (1999) point out the close relationship between concentrated ownership and the diffusion of pyramidal control. From their perspective, mechanisms such as pyramids and cross-shareholdings help enhance the power of controlling shareholders. The literature further studies the relationship between the nature of controlling owners (ownership) and diverse performance outcomes. Colli and Colpan (2016) point out that the relationship between ownership and performance takes place intuitively when the performance required changes according to the nature of the ownership. Different types of owners, such as the state, family, and minority shareholders, have different opinions about the performance they expect and require from their investments. Cuervo-Cazurra (2006) proves that family-controlled groups show better financial performance than other types of group ownership. He argues that efficiency is maximised by the reduction of agency cost due to a decline in conflict between owners and managers in family-owned business groups. Colli and Colpan (2016) discuss that it is worth investigating how concentrated ownership affects the firm's outcomes in terms of their distribution among different shareholders. This is particularly relevant in the case of business groups. The existence of concentrated ownership is associated with business group structures. The

controllers' ownership and control has been claimed to cause the principal-principal conflict between controlling and minority shareholders (Young et al., 2008).

The most relevant research to this thesis is about the complex relationships between the ownership of business groups and the performance outcomes under such ownership. Cuervo-Cazurra (2006) suggests that the ownership characteristics of business groups have an effect on their strategies, structures, as well as performance outcomes. The nature of the ownership and its influence on the performance of the group deserves more attention. Differences in performance have been recognised among different typologies of business groups (Cuervo-Cazurra, 2006). The literature not only fails to examine the performance of business groups sufficiently but also fails to extend the concept of performance, which focuses on financial performance in terms of returns such as investments or assets. A more comprehensive study should consider different conceptual dimensions of performance, including non-financial performance, which could be the principal goal of some types of owners. It has been implied in the literature that ownership types are related to strategic goals (Cuervo-Cazurra, 2006; Mayer and Whittington, 1996). For example, groups with state ownership are often employed to maintain the stability of society, absorb employment, or stabilise supply. Families use business groups to generate resources, and to yield desired outcomes and private benefits for family members (Cuervo-Cazurra, 2006; Morck, 2010). The case of family business groups shown by Colli (2012a, 2012b), which pursues diversification to meet the requirements of family members, leads different business lines and avoids conflicts of interests among family members, is an example of how the ownership affects the performance to achieve the success. There is a lack of analysis about widely-held groups in the literature. Widely-held business groups may need to obey management's interests to increase control or follow the goal to keep high profitability. There needs to be more research on the performance outcomes of business groups under different types of ownership. An investigation of the goals, financial and non-

financial, that different ownership types aim to achieve would contribute to the understanding of the business group and its owners.

2.2.1.3 The Effect of Ownership on Firm Performance

Business groups are ubiquitous organisations in many countries. Groups typically have a pyramid structure, and their affiliated subsidiaries are independent legal entities which have limited liability and autonomy in the external capital market (Cestone and Fumagalli, 2005). La Porta, Lopez-de-Salines and Shleifer (1999) find that controlling shareholders obtain voting rights through the pyramid structure and management participation. As dominant shareholders can obtain private benefits through their ownership, including transferring profits and assets to themselves through covert channels or connected transactions, ownership indicates a power of control over the company. La Porta, Lopez-de-Salines and Shleifer (1999) also show that most enterprises have concentrated ownership in 27 developed countries, with widely-held ownership only in those countries with excellent shareholder protection. Most enterprises are controlled by families or the government. It is uncommon that companies are controlled by financial institutions or widely held. The voting rights of a company can be held directly by the ultimate controlling shareholder, or indirectly obtained through various channels by the ultimate controlling shareholder. Following on from La Porta, Lopez-de-Salines and Shleifer's (1999) ground-breaking research, some empirical studies further describe the status of ultimate owner in east Asian and western European countries. Claessens, Djankow and Lang (2000) point out that there are the ultimate controllers in more than two-thirds of the companies they studied.

When a business group is formed, there exists the structure used for expropriation. The basic motivation of expropriation is for controlling shareholders to gain private benefit. As a result

of the existence of private benefits, interest differentiation emerges between the controlling shareholder and other shareholders. Scholars use qualitative research to prove the existence of deprivation and parse its internal processes and mechanisms. A representative work is the research report 'Corporate Diversification in East Asia: The Role of Ultimate Ownership and Group Affiliation' by Claessens et al. (1999). The authors set up a database including the ultimate controllers of business groups, status of their subordinate enterprises, and enterprise diversification. The database comprises the data of more than 2,000 companies in nine east Asian regions from 1991 to 1996. They find that the level of control rights is indirectly related to the diversification level. With the growth of control rights for the subordinate enterprises, the ownership concentrates, and the ultimate controllers only bear part of the cost but enjoy all the benefits, which contributes to the expropriation of other shareholders' wealth. The concentrated ownership could bring potential losses. The controlling shareholders principally satisfy their own interests instead of those of other investors. This means controlling shareholders may use their power to pursue personal benefits, even at the cost of other shareholders' profits. It is uncertain whether controlling shareholders behave in favour of minority shareholder or not, as empirical studies about different types of controlling shareholders cannot reach the agreement about the effect of ownership on firm performance.

Family control is common in publicly listed corporations all over the world. In the U.S. and Western Europe, controlling families usually hold the majority of equities and remain in executive positions. Like other large shareholders (such as the state, institutions, and private), families have an incentive to reduce agency costs and maximise firm value. As the families normally invested their private assets in the business, the incentive should be particularly strong. Families are a distinctive type of shareholders who have outstanding concerns for firm development and great incentives to monitor managerial activities (Andres, 2008). In fact, the

agency conflicts generally do not arise when the family is a part of the executive board according to Anderson and Reeb (2003). They show that family controlled firms benefit from a lower cost of debt financing than other firms. Also, as most families treat the business as an asset to be passed on from one generation to the next, they made long-term investment decisions which could lead to more efficient managerial strategies. However, potential costs also come along with family ownership. Even though family controllers have an incentive to maximise firm's value, their interests are not entirely in line with others'. Rather than perusing firms' profits, the family may sacrifice earnings for private benefits and expropriate minority investors. In addition, the family controllers tend to limit the executive board to family members, and the family' intervention in choosing managers and executives also leads to a decrease of firm value, as it is hard for outsiders to control and monitor the managerial processes of the firm.

Conflicts between managers and shareholders have been widely discussed by researchers. One way to reduce agency problems is to grant the managers assets of the firm and thus align the interests of managers with shareholders. It may help decrease the agency conflicts between managers and shareholders if the managers become shareholders. Nevertheless, there is still a probability that the managers become too dominant in the firm and worsen the firm performance. There are no consistent results about the effect of managerial ownership in the literature. Himmelberg, Hubbard and Palia (1999) find no significant effect of managerial ownership on firm performance. However, using a sample of data from 1995 to 2003 in the U.S., Benson and Davidson III (2009) present a significant inverted U-shaped relationship between managerial ownership and firm performance.

Inefficient allocations of capital, assets, labour and managerial powers lead to agency conflicts within corporations. Institutional investors have been treated as potential monitors to mitigate such agency costs. Pound (1991) explains that institutional investors, as large shareholders, have a positive effect on firm value. However, institutional investors are also agents, with their own agency problems. For example, the public pension funds are usually managed by officials and their interests may not be aligned with those of other shareholders. Like other concentrated ownership, the relationship between the institutional investor and firm performance may be either positive, negative, or no effect. Specifically, the institutional ownership has a positive impact when the shareholders' interests converge, but will otherwise have a negative impact.

The role of institutional shareholders in monitoring managerial processes and improving firm performance has been examined in the literature. Previous studies (Woidtke, 2002; Schmidt and Fahlenbrach, 2017) have investigated the relationship between institutional investors and firm performance in the U.S. but presented mixed outcomes. Woidtke (2002) shows that firm performance is positively related to private pension funds and negatively related to public pension funds by examining a sample of Fortune 500 firms from 1989 to 1993. The result implies that institutional investors have multiple impacts on firm performance. Public pension funds are normally operated by the state, so that political and social pressure brings potential conflicts of interest between them and other investors. The managers may not act in line with the interest of other shareholders. Schmidt and Fahlenbrach (2017), investigating the period from 1992 to 2010 in the America, find that managers become more powerful after exogenous increases in passive institutional ownership, and this has negative consequences on firms' value.

As an essential shareholder in the listed firms, the government can use their power to affect managerial strategies and business decisions. Most state-owned enterprises treat societal

stability as their primary objectives, rather than maximizing firm value, which may result in severe agency conflict. Moreover, politicians may abuse power to pursue personal profit. Their incentives to monitor the managerial processes are considerably low, meaning state ownership should have an adverse impact on firm value. Nevertheless, state ownership could also bring benefit to firms. The government can help firms survive from extreme financial constraints by, for example, channelling funds from financial institutions, facilitating access to financial resources and providing financial support. State ownership can minimise the risk of defaults, alleviate economic distress and improve SOEs' performance.

Research on the effect of state ownership has led to mixed findings. Several scholars indicate that state ownership has a positive effect compared with other ownership types. Goldeng, Grünfeld and Benito (2008) find that the performance of SOEs is worse than that of private-owned enterprises (POEs) in Norway with a sample period from 1990 to 1999. Beuselinck et al. (2017) use a rich sample of 4,737 listed firms in 28 European countries during the financial crisis period, 2005–2009 to show that firms with government ownership suffered a more moderate decline of firm value than those not owned by the state. Their results also suggest that the positive effect of government ownership is only effective in countries with investor protection and low corruption. This indicates that institutional quality is a necessary condition to actualise the benefits of government.

However, other studies demonstrate a negative impact of state ownership. After examining a sample of 506 privatised non-financial firms in 64 countries from 1981 to 2008, Chen et al. (2017) find significant evidence that state ownership has negative effects on investment efficiency. They also show that foreign ownership is positively related to the investment efficiency. The remarkable differences in investment behaviour reflect differences in the

degree of agency problems associated with government and foreign ownership. Similarly, Wei, Xie and Zhang (2005) find that both state and institutional ownership are negatively related to firm's value. Lin and Su (2008) also show that state and legal person ownerships are negatively related to firm value, and the relationship between ownership concentration and firm value presents a U shape. They also show that firms owned by the government do not tend to diversify and perform worse than firms owned by other entities.

Moreover, several studies examine the effect of share reform on the relationship between ownership and firm performance. By evaluating the performance changes of 634 listed state-owned enterprises in China during share issuing privatisation (SIP) in the period 1994–1998, Sun and Tong (2003) find that SIP is effective in improving SOEs' profitability, sales, and labour productivity but has no impact in improving profit returns or leverage. Chen et al. (2008) investigate Chinese listed firms' performance when the controlling shareholder changes, over a five-year period, 1996–2000. These changes include the ownership being transferred from one state entity to another or from the state to a private entity. They find that the firm performance is positively improved when the ownership is transferred to a private entity. But there would be little change in firm performance if the control is passed to another state entity. Liao, Liu and Wang (2014) show that the output, profitability, and employment of listed firms in China increased after the Split Share Reform in 2005, but that operating efficiency of both SOEs and non-SOEs decreased. The inconsistent impacts of ownership are related to the motivations and interests of the owners.

2.2.2 Development of Chinese Market

Business groups appear when the institutions are weak, but they have obtained eternal life rather than disappeared (Morck, 2010). Given their important role in the economy and the

political powers and relationships, business groups tend to be maintained for the long term. In the case of China, the government needs the internal structure of business groups to maintain control over the large and super large listed firms and also use them to implement political missions. Since the pioneering times of China's economic reforms in the 1980s, the country's administration has been committed to promoting a group of global companies to compete with those from developed countries. As early as 1987, central policymakers emphasised that 'business groups are significant to developing production capabilities and deepening the reform of the economic system'. These policies appear to have been remarkably successful, as by 2012 there were 70 firms from China in the Fortune 500 and 22 Chinese firms in the Financial Times Global (FT) 500. The market capitalisation of Chinese firms in the FT 500 was just behind the US and the UK.

2.2.2.1 Economic Reforms in China

China's economic reforms since the 1980s have been experimental. A series of practical reforms attempted to create a group of globally competitive large companies and the administration treated these reforms as the centre of the country's development strategy. The first experiments in the 1980s built enterprise autonomy, and enhanced firms' rights to preserve profits and engage in the market (Nolan, 2014). These reforms were extended from the early 1990s with large companies transformed into corporate entities with diversified ownership. The extensive corporate restructuring took place through mergers and acquisitions. The reforms process in China can be treated into multiple stages, with two main stages standing out (Jiang and Kim, 2015). The first stage was the opening of the stock markets in the early 1990s, which allowed for public ownership of stocks. The second stage was the Split Share Reform that took place in 2005. The Split Share Reform transformed the non-tradable shares into tradable shares. The Split-share Structure involves two classes of shares, namely tradable and

non-tradable shares. Non-tradable shareholders were the state and legal persons, while the tradable shareholders were domestic individual investors and domestic and foreign institutional investors (Jiang and Kim, 2015). The Split Share Structure allowed the government to retain control over firms but also use market mechanisms to regulate and discipline them. Under the Split Share Structure, the managers of the state-owned enterprises had few incentives to improve firm inefficiencies. The government made a concession and transferred the non-tradable shares into tradable shares in 2005. Upon completion of the Split-Share Structure Reform, the Chinese stock market became commensurate with international markets in terms of pricing and valuation. By the end of 2007, almost all firms had established a plan and a detailed timetable to gradually convert all non-tradable shares to tradable shares. More than half the firms had more tradable shares than non-tradable shares. Specifically, in 2007, the average percentage of shares that were tradable, by firm, was 53.8%. By 2012, the majority of shares were tradable in more than half of the firms. The average/median percentage of shares that are tradable, by firm, is 76.5% /95.4% (Jiang and Kim, 2015).

2.2.2.2 Control Structure of Listed Firms within Business Groups

After the reforms, a large proportion of listed firms in China were controlled by business groups. Most of the listed companies belong to a business group and are the core competitive enterprises in the group. The formation of this pattern is due to state-owned enterprise shareholding system reforms. The original enterprises were merged as groups or high-quality assets of the original business group were integrated for listing. Also, some private enterprise groups integrated their subordinate enterprise resources and assets in order to qualify for public financing. As a result, a number of listed companies in China are under the control of a parent company in a business group. As there is no effective external control mechanism, the group's parent company plays a leading role in the control of listed firms. A business group's parent

company as the controlling shareholder of listed companies has a principal-principal identity. As the principal of the listed companies, the parent company in the business group has informational advantages and does not tend to be risk-averse when compared to the controlling shareholders of non-business group. The parent company in a business group is capable of monitoring and controlling the operations of its listed companies and improving their performance, and as the principal in operating state-owned assets, the parent company has the motivation to maximise the interests of the whole group by using the listed company. With the absence of a perfect external control mechanism, the parent company firmly grasps the control of listed companies in the group and makes them serve the group's overall interests. The formation of business groups in China thus led to ultimate control of listed companies by their parent company/entity and conflict between the controllers and minority shareholders.

The Chinese government reformed itself as a shareholder and institutional investor in the economy and adopted financial tools to operate its ownership, resources, and investments (Wang, 2015). It owns a significant quantity of assets and invests in the financial markets, with government at all levels actively employing structured financial systems to leverage assets and finance investment. These systems suggest a new stage of economic development in the Chinese market. To participate in the shareholding competition, state asset management bodies have been creative in transferring state resources, such as convenient access to cheap credit, regulatory favours and, essentially, sovereign confidence, into financing capacity. These politically leveraged financing methods raise issues about sustainability. The Chinese state has played a dominant role in creating the financial markets. Scholars believed that the corporatisation of SOEs was the start of a kind of privatisation with Chinese characteristics (Ma, 2010; Walter and Howie, 2011). The number of SOEs decreased from 120,000 in 1990 to 30,000 in 2004 after the shareholding reform (National Bureau of Statistics of China, 2018).

The reform strategies reflect the changing perceptions of the policymakers of the Chinese government. In the early stages, the reforms of state-owned firms concentrated on strengthening the control rights of managers rather than restructuring ownership. During the 1980s, SOEs' inefficient performance was mainly treated as a managerial problem. In 1994, Premier Rongji Zhu attributed SOEs' low profit and lack of innovation to the socialist managerial class in China (Zhu, 2011). The solution of the government was to establish reforms to clarify and preserve the shareholder rights of the state. In 1997, President Jiang Zemin reported to the National Congress that the state's shareholding must be a part of the SOE reforms. By 2000, 85% of state-owned industrial firms had been corporatized and restructured with corporate governance structures, which introduced shareholder meetings, boards of directors and boards of supervisors (Zhou and Zhang, 2005; Garnaut et al., 2005). As state ownership dominated, the chairman of the board of directors was normally nominated by the government and the government legally had influence over managerial appointments and incentives.

The government was convinced that as long as the state held majority shares in strategic industries, it would not only maintain the rights of the large shareholder but also be able to leverage private funds for financing. The stock market had become a general platform to raise capital and the unusual structure of SOEs' shareholding avoided the possibility of diluting the state ownership. The shares of listed companies were divided into three main types: state shares, legal person shares and A-shares, with only A-shares tradable on the stock market, and non-tradable shares accounted for at least two-thirds of the total shares of all listed companies (Jiang and Kim, 2015). Non-tradable shares were secured for state ownership. Since 2007, more SOEs have been taking advantage of the stock market. By 2012, 953 state-controlled

corporations were listed, and this number accounted for 40% of all listed companies and 51% of total market capitalisation on the A-share market (Wang, 2015).

The state designates unique structures to act as shareholders and exercise their rights. An official system was built to exercise the rights of government as shareholders. In 2003, the SASAC was established. It is an administrative agency directly under State Council, which was established to be the representative of state ownership and perform investors' responsibility in SOEs. By 2005, the local SASAC system had been built at the provincial and municipal levels to supervise local SOEs. One of SASAC's core missions was to establish and update the index system for preservation and increase of the value of state-owned assets. SASAC has gradually become a standard state shareholder in most of the listed firms in China. One of the most significant development was the issue of dividend management policy. After a period of paying no dividends, SOEs would be instructed and ordered to hand over a share of profit to the state at a specified rate. SOEs had to pay 10%, 20% or 25% of their profit depending on the profitability of the sectors they were in. A recent decision by the state in 2013 on 'Some Major Issues Concerning Comprehensively Deepening the Reform' was aimed at bringing the average rate of SOE dividends to 30% in 2020 (Central Government Website, 2013).

State administrative agencies are not profit-oriented and only have limited budgets to cover administrative costs. Therefore, the Chinese state has built bureaucratic entities to generate funds. They capitalise institutional assets and transform them into investable capital. The central administrative agencies set up corporate holding companies to raise funds and the SASAC attempted to enhance its own organisational structure. It built up industrial holdings as the intermediate layer between itself and SOEs, granting SASAC a direct financial method to capitalise industrial resources and act as a platform to optimise investment portfolios. The

local governments also designed state asset management systems for capitalisation and local financing platforms to raise funds for urban development and infrastructure projects. The local financing platforms leveraged state-owned assets and used them as guarantees. For example, land in China is owned by the state, but the sale and leasing rights belong to local governments. To further standardise the functions of the state holding and investment companies, the State Council issued the ‘Guidance of the state council on deepening reform of state-owned enterprise’ (Xinhua Net, 2015b) and ‘Opinions of the state council on reform and improvement of the state-owned assets management system’ (Central Government Website, 2018b). Under these rulings the local governments are required to accelerate the establishment and reform of the state-owned capital investment and operation companies. These companies are the professional platforms for the operation of state-owned capital and perform the state investors’ duties.

Due to historical reasons, the state-owned enterprises bear the multiple responsibilities and missions. The ‘profit mission’ and ‘commonweal mission’ coexist in many enterprises. Some missions which should be fulfilled by government or purchasing service were borne by the enterprises. Some important decisions which should be independently decided by the enterprises are still examined and approved by the government. This has hindered the development and improvement of systems and mechanisms of the marketisation of enterprises. Through decentralisation, the rights of the state-owned property right transfer, managers’ performance appraisal and compensation management are entitled to the state-owned capital investment and operation companies.

The ‘guidance’ and ‘opinion’ help to separate the ownership and management rights and build a ‘the government and the department of state-owned assets management - state-owned capital

investment and operation companies – listed firms’ control structure. The control rights within the business groups are multidimensional. Zhou and Lian (2012) propose a theoretical model of Chinese government authority relations from the perspective of incomplete contract and new property rights theory. The control structure within the business group is similar with Zhou and Lian’s (2012) hierarchical organisation model. Specifically, the control structure model involves: First level (principal) is the administration of the state-owned asset, such as government, SASAC, asset management bureau etc. They mainly perform the assets’ administrative functions. Second level (manager) is the management and operation of the state-owned asset, such as the state-owned capital investment and operation companies. They help the government agencies to raise the capital for investment and exercise part of the shareholders’ rights entitled by the principal. Third level (agent) is the direct controlling shareholders of the listed firms. They are the largest shareholders in the listed firms and are engaged in professional state-owned assets/capital operation, relying on the market mechanism. They are responsible for the increase of state-owned asset value and creating profits for the principal. Appendix B describes the control structure model of Chinese listed firms in details. Figure 2.1 shows the multiple level control structure model of listed firms.

Insert Figure 2.1

The rights of control structure model in this thesis can also be divided in to three dimensions: Firstly, target enactment right is held by the administration level. For example, the SASAC establishes and improves the index system for preservation and increase of the value of state-owned assets. The documents issued by the SASAC include management of SOEs’ shares, assets and dividends, as well as the targets of the central government such as employment stabilization. Secondly, inspection and acceptance rights are also held by the administration level. The inspection and acceptance rights are affiliated to the target enactment right. After

setting the targets, the principal can exercise their inspection and acceptance rights regularly. The SASAC periodically investigates the performance of state-owned listed firms, and also maintains the rights to collect the dividends. Thirdly, incentive distribution right is held by both administration and management levels. The SASAC or other asset management bureaus have the responsibility to set incentive and evaluation mechanisms. Resources allocation is normally decided by state-owned assets management companies. The control structure model works as follows: first of all, the government or asset management agencies (principal) set specific targets and make ‘contracts’ with the assets management companies (manager). Then, the principal exercises inspection and acceptance rights, periodically reviewing and assessing the performance of listed firms, in order to ensure the manager and agent are achieving their targets on time.

The control structure model helps to explain why the state adopts this control structure instead of acting as a direct shareholder of the listed firms. There are three reasons to establish the structure: first of all, direct control brings enormous cost. In Zhang and Lian’s (2015) control theory of Chinese government, the distribution of control rights comes with corresponding costs. There is a wide range of administrative and spatial distance among the central government (principal), middle government (manager), and grassroots government (agent), making the separation of control rights is necessary in many situations. This also applies to the distribution of control rights in listed firms. For example, there are listed firms in different industries, provinces and administrative levels. If the principal holds all the control rights, the management and operation will be inevitably overwhelmed. To exercise effective management, the principal needs to receive accurate information and understand the conditions of the listed firms. Obviously, it will be costly for the principal to exercise the rights. The scope and strength to exercise rights is also limited. The costs are too high for the principal to handle when

conducting comprehensive management strategies for all firms. Moreover, through the pyramids to build multiple level management system, the principal is able to use little cash to obtain the control rights of listed firms. Therefore, in the actual operation of the Chinese listed firms, the separation and distribution of the control rights is practical.

Secondly, separation of control rights can improve the performance of listed firms. As already stated, due to historical reasons, the state-owned enterprises bear the multiple responsibilities and missions. The ‘profit mission’ and ‘commonweal mission’ coexist in many enterprises. The separation of these two missions could give incentives to managers to increase firm value and improve firm performance. Also, some missions that should be fulfilled by the government or by purchasing services are borne by the enterprises. For example, in the international food crisis from 2006 to 2008, the central enterprises enforced national minimum prices to purchase, sell or auction, and other controlling policies to maintain the stability of grain market, making China a ‘safety island’ in the global food crisis (SASAC Website, 2010b). The petroleum and petrochemical enterprises actively support the national macroeconomic regulation and control to ensure the stability of the domestic oil supply and maintain China's fuel prices relatively stable. The refining plate of three central petroleum and petrochemical enterprises suffered a loss of 165.2 billion yuan due to the policy factors, of which the state provided financial subsidies of about 63.2 billion yuan and companies used their own capital to supply more than 100 billion yuan. Some important decisions which should be independently decided by the enterprises are still examined and approved by the government. These actions have hindered the development and improvement of systems and mechanisms of the marketization of enterprises. Decentralisation means that state-owned property right transfer, managers’ performance appraisals and management compensation are entitled to the state-owned capital investment and operation companies.

Thirdly, the financing platforms are necessary. The principals such as SASAC and asset management bureaus have no capital assets of their own. Developing financial agents under its control appears an optimal strategy. Since 2005, SASAC has uprooted three industrial SOEs under its supervision – State Development and Investment Corporation (SDIC), China Chengtong Group and China Guoxin Corporations – from their sectoral production and remoulded them into holding and investment companies (Wang, 2015). These industrial holdings were intended to be intermediate layers between SASAC and listed firms, so that they could lend SASAC a direct financial means to amass industrial assets and a platform to optimise its portfolios.

The control structure model helps to understand the internal structure within the business groups. The ultimate controller, which refers to the principal in the model, owns the final authority rights to operate the listed firm, determines the management direction of the listed firm and influence the performance outcome. The direct controlling shareholder, which refers to the largest shareholder in the listed firm, must obey the instructions of the ultimate controller and barely have own interests when managing the company. The connections that relate the ultimate controller to the listed firm may further affect the relationship between the ultimate controller and performance outcome, as the connections within different business groups bring particular costs of supervision or information transfer. The thesis aims to provide a comprehensive picture of the ownership structure of Chinese listed firms within business groups by investigating the relationship between the ownership and firm performance from the three aspects: ultimate controller, direct controlling shareholder and their connections.

2.2.3 Research Question

There are gaps in previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Jiang, Rao and Yue, 2015; Liu, Wang

and Zhu, 2021). The first trend of literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) uses share type to represent the ownership which obscures the ultimate owners of the shares. The second one (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021) fails to distinguish the state-controlled listed firms by function, objective or administrative levels.

As there is no official classification of the ownership structure in Chinese listed firms, previous literature adopted an unofficial mechanism, share type, to represent different kinds of ownership. For example, the literature treats the owners who hold state shares as the state ownership, those who hold legal person shares as the legal person ownership (some researchers treat the legal person shares as institutional ownership), and those who hold tradable A shares as individual/private ownership (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010). This classification fails to identify the real owners. Figure 2.2, below, shows the connection between share types and shareholders.

Insert Figure 2.2

Figure 2.2 shows that legal person shares are not only held by private-controlled legal persons but also by state-controlled legal persons. Using the share types as the indicators of ownerships fails to separate state-owned legal person shares and private-owned legal person shares. The owners of these two types of shares may perform differently when managing the firms. For example, China National Petroleum Corporation is a central state-owned enterprise and also the ultimate controller of CNPC Jichai Power Equipment Company. Hangzhou Jinjiang Group Co., Ltd. is a private enterprise and owns Union Developing Group of China Co., Ltd. Both of these enterprises hold the legal person shares and have legal person status to manage the listed firms. However, the central state-owned enterprise not only tends to follow the instructions of

government but also receives more benefits from the government than would the private enterprise. The performances of their respective listed firms may well therefore be different. Treating the legal person shares as one type of ownership may obscure the actual owner of the firms and lead to unreliable results. Furthermore, state ownership in previous literature (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021) has been broad, without distinguishing among the several types and layers of the state. State ownership is scattered among various agencies, such as central/local governmental departments, state/local asset bureaus, or central/local SOEs. These agencies have diverse objectives to operate companies and incentives to monitor managerial processes and mitigate agency conflicts. Thus different forms and levels of state ownership can lead to different firm performances and lumping of all types of state ownership into one group fails to present the real impact of the ownership.

In summary, the mechanisms that previous literature employed to classify the ownership structure in Chinese listed firms have deficiencies and lead to inaccurate research results. Share types only indicate the category of shares rather than the ultimate owners of the shares. Using share type as the proxy for ownership obscures the actual effect of shareholders. Moreover, the state, as an essential shareholder in listed firms, has various agencies with different functions. Specifically, the central government has greater motivation to stabilise the society, while local governments and agencies care more about firms' profitability and valuation. Lumping all types of state ownership into one cannot present the different effects of various government agencies, such as the various performances of central and local state-owned firms regarding central government policy. Failing to provide a clear, accurate and detailed classification of ownership structure in Chinese listed firms is a gap in the literature.

The first contribution in this chapter is to identify 21 different types of ultimate control within the business groups based on ultimate controllers' administrative level, function and objective. I use hand-collected data to develop a new classification that helps differentiate between state agencies. I use different administrative levels, state, provincial and municipality level as one dimension and functionality as another dimension of this classification. Secondly, current research fails to extend the scope of performance, which is mainly focusing on financial performance such as returns on assets (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015). This is that the previous work treats state ownership as one variable without due attention to types and layers of state organisation and their distinct objectives. A more comprehensive point of research lies in the different conceptual dimensions of performance, including non-financial performance, which may be the principal objective of specific types of owners. I construct the analysis with the understanding that Chinese governments have a holistic view and use state apparatus carefully in integrating market economy to their other targets. The investigations in the chapter relate each administrative level of ultimate controllers to different firm objectives, including not only financial performance but also employment, investments and productivity. As Cuervo-Cazurra (2006) suggests that a more comprehensive study should consider different conceptual dimensions of performance, including non-financial performance, which could be the principal goal of some types of owners. Both the financial and non-financial goals, which various ownership aims to pursue, help to explain the role of controllers within the business group. Thirdly, the chapter contributes to the business group literature by providing empirical analysis of the listed firms' ownership in business group and performance outcomes. The literature (Carney et al., 2018) has presented a theoretical framework of business groups with multiple potential outcomes. It is worth investigating how concentrated ownership, which is represented by the control of ultimate owners in this chapter,

affects the firms' outcomes in terms of their distribution among different types of shareholders. The chapter also provides clear and detailed classification for the owners within the business groups, namely ultimate controllers, and shows whether their interests are aligned with those of minority shareholders.

2.2.4 Hypotheses Development

The state-owned enterprise was born with the establishment of the People's Republic of China and has made great contributions to the country's economic construction. State-owned enterprises have certain administrative functions. The controllers of the state-owned enterprises vary from state assets management organs to public institutions, which have different incentives and objectives when managing the state-owned enterprises. In the early years of the new China, the government prioritised development of heavy industry and promoted the industrialisation of the country. Nearly half a century later, with the establishment of the socialist economic system in China, the primary objective of the development of state-owned enterprises is maintaining social stability and economic growth. Large and super large state-owned enterprises will continue to be a significant force and mainstay of the national economy in the country. In 2016, the state-owned assets had reached 131 trillion yuan, constituting a remarkably large and complex system. State-owned and state holding enterprises dominate almost all industrial sectors (SASAC Website, 2017).

Large state-owned enterprises are also the main bulwark of against multinationals. After China's accession to the WTO, international large multinational companies entered the Chinese market, and foreign products surpassed domestic products. Due to the significant gaps in technology, scale and quality, the private economy still cannot compete with multinational corporations. Only the large state-owned enterprises can do this. For example, the colour TV

industry was the largest market for imported products, but in 1996, the Sichuan Changhong and other large colour TV companies started a marketing war against the foreign brands, based on price, quality and service, and broke the situation that the large screen colour TV market was dominated by foreign brands. After that, the large screen colour TVs of the Sichuan Changhong accounted for a third of the domestic market share.

Large state-owned enterprises also dominate the pillar industries in China, such as oil, chemical, machinery and electronics. China's seven major automobile groups contribute 66% of the total output of the industry; Jialing, North, Light and Jincheng, the four major motorcycle groups, account for about half of the total national output; Shanghai, Oriental, Harbin, the three main power equipment groups provide 70% of the total domestic power plant equipment (National Energy Administration, 2017). These large state-owned enterprises are owned by central or provincial-level governmental agencies due to their significance to the economy. As a vital governmental organ, the SASAC has the responsibility to supervise and operate state-owned assets, especially large state-owned enterprises (SASAC Website, 2018a). Compared with other state controllers, the SASACs have strict supervision systems, such as the assets management budget mechanism, leverage reduction system, and serve in the front line of the SOEs' reforms. SASAC must maintain and increase the value of state-owned assets and create wealth for society. From 2002 to 2009, the central enterprise's total assets increased from 7.13 trillion yuan to 21 trillion yuan, with an average annual growth of 16.74%; operating income increased from 3.36 trillion yuan to 13.63 trillion yuan, with an average annual growth of 20.8%; profits increased from 240.5 billion yuan to 815.1 billion yuan, with an average annual growth of 19%. In 2009, there were 53 central enterprises with more than 100 billion yuan of assets, 38 enterprises of more than 100 billion yuan of revenue and 13 enterprises of more than 10 billion yuan of profit (SASAC Website, 2010a). A number of central enterprises are not

only the pioneers in domestic industries but also strongly competitive in the international market. There are 30 central enterprises in the Fortune 500, an increase of 500% since 2002. The central enterprises also contributed great wealth to the nation through taxes, state-owned capital gains and transfers of state-owned shares into the social security fund. The enterprises controlled by the SASACs are expected to make significant contributions to the domestic economy. Therefore:

H_{1a} The SASAC and high administrative-level governmental agencies as ultimate controllers have positive impacts on firm output.

The SASACs also care about public welfare, such as employment and price stability. They provide financial and political support to fulfil social responsibilities. The SASAC actively absorbs employment, protecting the legitimate rights and interests of employees. The central enterprises under SASACs' control positively respond to the call from the State Council that 'the key to ensuring people's well-being and maintaining stability is to protect the employment'. The companies take active measures to absorb as much employment as possible to ease unemployment pressure. In 2009 central enterprises took the initiative to hire more 200,000 graduates, an increase of 7% on 2008 (SASAC Website, 2010b). Central enterprises, in accordance with the requirements of 'cutting salary but no layoffs, suspending but no unemployment', stabilise employment, comply with the new labour laws, sign labour contracts with employees and cover the five basics: insurance pension, unemployment, medical treatment, industrial injury and birth. The low-level governmental agencies are strictly supervised by the high levels and follow the instructions of the central levels. Within a 'level upon level' control mechanism, the municipal-level governmental agencies must obey orders from central government. In the meanwhile, the provincial governmental agencies enjoy more

flexibility to fulfil social responsibilities, as the responsibilities are passed to the lower-level governments to execute. Therefore, I assume that:

H_{1b} The state controllers at central or municipal levels as ultimate controllers have positive impacts on firm employment.

The SASAC regulates that the hand-in proportion of annual net profit of enterprises solely funded by the state is 10%/5%/delayed/exempt based on different industries. The dividend of state investors in state holding enterprises and state shareholding enterprises is determined by the board of shareholders (State Council, 2008). Besides, the state-owned enterprises need to execute the national macroeconomic and control policy to ensure successful economic and social development. For example, the petroleum and petrochemical enterprises actively support national macroeconomic regulation and control to ensure the stability of the domestic oil supply and maintain China's fuel prices at a relatively stable level. The refining business of three central petroleum and petrochemical enterprises suffered a loss of 165.2 billion yuan due to the policy factors, of which the state provided financial subsidies of 63.2 billion yuan and companies used their own capital subsidy of more than 100 billion yuan. Excepting operating expenses, there is little left for investment and product innovation which could further lead to low profitability.

H_{1c} The state controllers as ultimate controllers have negative impacts on firm profitability.

State-owned enterprises play an important role in people's lives and the national economy, but the shortcomings of state-owned enterprises still cannot be ignored. Long-term government support leads to a lack of competitiveness and innovation in the mostly state-owned enterprises.

The main system of the state-owned enterprises was originally set up by confiscating bureaucratic capital and returning it to the public, and over the next 30 years, it became the main source of income of the nation's fiscal base and the main channel of spending. Under strong centralised planning management, the system basically does not pursue profit, becoming a virtual 'national factory' or 'workshop'. For example, there were extensive administrative interventions in the auto industry in the past, such as highly administrative controls in the foreign investment, import and export, consumption policies etc. The taxes and administrative fees for foreign auto brands are very high and the Chinese government regulates that foreign capital cannot exceed 50% of the total shares in a company in the motor vehicle and special vehicle manufacturing industry, restricting the access of foreign capital to the automobile industry. At the same time, domestic citizens who wish to buy imported cars need to pay the duties of 25% of the total value, 16% of value added tax, 1-40% consumption tax according to the vehicle emissions grading and 2-13% of the 'double anti-tax' (anti-dumping, countervailing) for some models. The long-term protection of the auto industry led to low market competitiveness, efficiency and innovation ability. Long-term political protection does not benefit domestic brand competitiveness. State-owned companies excessively depend on foreign technology, which led to the imbalance of state-owned enterprises' structure, lack of innovation and efficiency. Such political protection also exists in other industries. At present, the oil and natural gas industry has the monopoly on state-owned enterprises. Foreign capital is limited to joint venture and cooperation for the exploration of oil and gas, according to China's current regulations. In terms of the structure of distribution, in 2016 there were 136 oil and gas registered enterprises with total assets of 1.9996 trillion, including 83 state-owned and state holding enterprises with assets of 1.8895 trillion, accounting for 94.5% of the entire industry. In the oil processing and nuclear fuel processing industry, the number state-owned economic enterprises accounted for 11.8%, with 50.7% of the total assets in the industry (Ren,

2018). Similarly, the state-owned enterprises dominate in power generation, market operation, transmission, distribution and electricity sales, making it difficult for private capital to participate. Even though the support and protection from the government help the output of the large state-owned enterprises, the controllers (SASAC) and managers of these enterprises have few incentives to improve their efficiency.

State-owned enterprise investment is still a ‘catastrophe’ of fiscal expenditure and the major ‘producer’ of fiscal deficit. A large number of state-owned enterprises are listed for financing. The financing capital is used by the parent company or residing in the company's bank account. Little capital is used by the enterprises for production and operation which leads to low investment. Statistics show that in the third quarter of 2003, 771 listed companies in the Shanghai Stock Exchange had a weighted average earnings per share of 0.159 yuan and a weighted average return on equity of 6.18% (Shanghai Stock Exchange, 2018); 507 listed companies in the Shenzhen Stock Exchange had a weighted average earnings per share of 0.152 yuan and a weighted average return on equity of 5.85% (Shenzhen Stock Exchange, 2018). On October 28, 2003, 1254 A shares’ closed weighted average share price was 6.98 yuan. The investors’ gross yield was less than 2.25%. The yield just equalled one-year bank deposit rates. But this did not stop the state-owned enterprises’ financing in the stock market. The initial public offerings of the Yangtze power even exceeded 10 billion yuan. Large state-owned enterprises become a huge sponge, constantly consuming national financial fund, constantly draw funds from securities markets and give little return. Moreover, state-owned enterprises undertake many social functions, which leads to redundant staffs and inefficiency. For example, although in recent years the Shanxi state-owned enterprises made a lot of effort to decrease the number of employees and increase firm efficiency, the number of Shanxi state-owned enterprise employees was 1.9 million at the end of 2016, accounting for 46.2% of total

employees in the province. At the same time, state-owned enterprise employees account for 34.5% of total employees in the country (Zhongtai Securities Co., 2018). With such large numbers of employees, the labour productivity of the state-owned enterprises is very low. Therefore:

H_{1d} State controllers as ultimate controllers have negative impacts on firm productivity, including operating efficiency, investment and labour productivity.

In general, the literature showing the impact of ownership on firm performance outcomes has shortcomings. The studies either uses share type to represent the ownership, which obscures the real owners of the shares (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) or fails to distinguish the state-controlled listed firms by function, objectives or the administrative level (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). To fill the gap, this chapter develops a new classification that helps differentiate between owners and provides a more comprehensive study from different conceptual dimensions of performance, including both financial and non-financial performance. The chapter contributes to the business group literature by providing empirical analysis about listed firms' ownership in business groups and performance outcomes.

2.3 Data and Methodology

The chapter starts by investigating the impacts of different types of ultimate controllers on the firm performance, to systematically connect the relationship between ownership and performance outcomes with structural characteristics of business groups. This section shows the sample used in chapter, introduces the new ownership classification, discusses ownership

variables as the independent variables and performance measures as the dependent variable, describes the control variables and provides summary description of the data set.

2.3.1 Sample

The ownership data in the chapter is obtained from the Chinese Securities Market and Accounting Research (CSMAR) database, the leading and most commonly used financial data provider in mainland China and has been widely employed in the literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Cao, Pan and Tian, 2011; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Jiang et al., 2018). Information on the ultimate controllers in the listed firms has only been available since 2003. When I collected the data, the information was available up to until 2016, so the period of the data used in the thesis is from 2003 to 2016. Specifically, the original data set, which is presented in Table 2.1, comprises: the stock code of each listed firm, a short name of each listed firm, the data collection date, the largest shareholders and their shareholding proportion, the total shareholding proportion of the top 10 shareholders, the name of actual controller of each listed firm, the nature code of each controller, the code of equity nature, hierarchy and founder of each listed firm. The data set provides essential information, such as the name of actual controllers and hierarchy, to develop a new ownership scheme.

Inset Table 2.1

To validate the correctness of the data set, I check the information disclosed in the annual financial reports of every listed firm to confirm that the names of actual controllers are consistent. Following Wei, Xie and Zhang (2005), Chen et al. (2011), Liao, Liu and Wang (2014), Jiang, Rao and Yue (2015), I delete 77 listed firms in the financial industry because their accounting standard are different in nature. I delete the observation of the firm only in the

years when the information of the actual controller is missing or not disclosed, or if the firms has more than one actual controllers. I also maintain the observation of every firm before the firm is merged or deactivated to avoid survivorship bias in line with previous literature (Chakravarty and Ray, 2020). For example, the China Merchants Property Development Co., Ltd. (stock code:000024) was listed on the Shenzhen Stock Exchange from 2003 to 2014, and then was merged into the China Merchants Shekou Industrial Zone Holdings CO., Ltd. (stock code: 001979), which was listed on the Shenzhen Stock Exchange from 2003 to the present day. I keep the observations of the China Merchants Property Development Co., Ltd. (stock code:000024) from 2003 to 2014 in the sample to avoid survivorship bias.

There are 98 firms demonstrating that they do not have the ultimate controller, so I treat them as the listed firms without an ultimate controller. The initial sample includes 3,217 firms, and 28,622 firm-year observations. After deleting the observations of enterprises whose ownership data is missing or unidentifiable in a particular year, enterprises in the financial industry, the final data set includes 3,077 firms, and 27,077 firm-year observations of the period from 2003 to 2016. The deleted firms account for 4% of the initial total firm number.

2.3.2 Ownership Classification

The Board of Supervisors of Key and Large State-owned Enterprises points out that SOEs comprise a complex system, involving governments at all levels, multiple departments, central enterprises and local enterprises, state assets supervision systems to supervise enterprises, and other departments and units to supervise enterprises (Ji, 2017). The third plenary session of the 18th CPC Central Committee also emphasised to define different capabilities of the state-owned enterprises. As the controller principally decides the operation mode of the firms, identification of roles of SOEs' controllers is necessary (Li and Du, 2017).

I identify the ultimate controller of each listed firm and categorise them based on first the administrative levels, and then on functions and objectives. As described before, I use the Measures for the Administration of the Takeover of Listed Companies to identify the ultimate controllers. The ultimate controllers in China use the pyramid structure, cross-holding and other methods to obtain control rights over the listed firm. I trace the control chains to find the entity/person that sits at the top of the pyramid and identify them based on their characteristics.

2.3.2.1 Classification of Ultimate Controllers according to Administrative Levels in China

I classify controllers by identifying their different administrative levels and functionality. I use the current administrative regions in China, which include three levels: Central State, Province, and Municipality as the administrative levels in the paper. The controllers directly affiliated to the State Council or departments of the State Council are regarded as Central. Based on the listed firms' information in CSMAR, the other controllers are treated as Province and Municipality. Thus, there are three administrative levels in the chapter: Central, Provincial and Municipal. For example, the PetroChina Company Limited is directly under control of the State Council and is treated as a central-level listed firm. The government of Jiangsu Province is classified as the provincial level, and the finance bureau of Jinan City Government is categorized as the municipal level. I use these administrative classifications for all firms and I then classify them into Government, SASAC, Asset Bureau and Government Department, State-owned Enterprises and Public Institution.

State-owned Enterprises are difficult to distinguish at Provincial or Municipal levels. Some of the Municipal State-owned Enterprises may be directly owned by the provincial governments or other state entities at provincial level. For example, the ultimate controller of the listed firm Inner Mongolia Baotou Steel Union Co., Ltd. is Baotou Iron and Steel (Group) Co., Ltd. Baotou

is a municipality of the Inner Mongolia autonomous region, but the Baotou Iron and Steel (Group) Co., Ltd is directly managed by the Inner Mongolia autonomous region instead of the Baotou city. Therefore, I combine the State-owned Enterprises at Provincial and Municipal Level into a Local State-owned Enterprise category. Therefore, State-owned Enterprises are classified into two administrative levels, accordingly, central and local. Government at the Central Level is the State Council, which is the highest state administrative organ, and it does not own any listed firms. Therefore, the classification in this chapter includes only two categories, Provincial Government (such as government of Zhejiang Province) and Municipal Government (such as government of Hangzhou city). Public Institutions (such as China Agricultural University) are social service organisations and thus I do not further classify them into state administrative levels.

The state controllers at different levels have diversified objectives. Central enterprises are SOEs owned by the agencies or departments affiliated to the central government. The Chairman of the Board of State Development and Investment Corporation, Wang Huisheng, points out that the title of central enterprise itself is the largest social responsibility, in the conference of 22nd June 2017 (Wang and Du, 2017). The central enterprises have political responsibility, social responsibility, economic responsibility and the responsibility of enterprise development. They must obey and serve the national strategy, develop in conformity with legal provisions and act as the representatives and pioneers of the times. The third plenary session of the 18th CPC Central Committee also indicated that central enterprises should standardise their employment systems and eliminate the systematic obstacles and employment discrimination of area, industry, identity, gender and other factors affecting equal employment (Li, 2014). These central enterprises construct thousands of projects focusing on infrastructure construction, energy construction and performing social responsibilities, such as ecological and

environmental protection, solving employment issues and providing public welfare establishments. The central enterprises contribute great wealth to the nation through taxes, state-owned capital gains, and transfers of state-owned shares into the social security fund. The state controllers at Central Level have the capacity to improve the output of listed firms under their control. In the first half of 2016, the total revenue of the central enterprises was 10.8 trillion yuan, the total profit was 623.5 billion yuan, increasing the total assets by 3 trillion yuan (SASAC Website, 2016). The state controllers also care about public welfare, such as employment and price stability. They provide financial and political support to fulfil the social responsibilities and they actively absorb employment, protecting the legitimate rights and interests of employees.

Unlike the central government focusing on social responsibility and people's livelihoods, the provincial levels enjoy more flexibility to fulfil social responsibilities as the responsibilities, which are passed to the lower-level controllers to execute. The local levels have long gaming relationships with local SOEs and are the most sensitive agencies to policies demand of the microcosmic systems. They can also represent of microcosmic bodies to negotiate effectively with the higher-level governments and strive for proper reforming spaces and resources. However, the low levels are also strictly supervised by the high levels and followed the instructions of the central level. Within a hierarchical control mechanism, the municipal levels must obey orders from central level to fulfil their social responsibilities at the expense of firms' financial performance. Appendix C shows the policies for the state-owned enterprises at different administrative levels in details.

2.3.2.2 Classification of Ultimate Controllers according to Functionality and Objectives

Among the government agencies, asset management entities and other governmental departments need to be distinguished by their functions and objectives. Some emphasise

market-oriented performance measures, but others have other diverse objectives. I therefore use six categories in the following classification.

The State Asset Supervision and Administration Commission of the State Council (SASAC) is a governmental agency authorized by the State Council. I categorise SASACs into Central SASAC, Provincial SASACs (such as Anhui Province SASAC) and Municipal SASACs (such as Baotou Municipal SASAC). The SASACs at Central and Provincial Level have the target to improve the output of listed firms under their control. These enterprises are expected to make significant contributions to the domestic economy and therefore receive continued political support from the Chinese government that helps them to hit their output targets. However, the long-term political support also leads to a lack of competitiveness, as mentioned above. In Appendix D, I explain the detailed functions of SASAC.

Asset Bureaus are asset management and operation departments of the government that act as complements to the SASACs. There are few asset management departments in the sample that were either reformed into asset management companies or merged into SASAC at some point, or focused on the management of a certain type of activity, such as the culture. I cannot classify them into the SASAC, because they do not have the same political power to support the listed firms under their control in the way that the SASACs do. Their aim is to appreciate asset value, and they have an obligation to maintain and increase the value of state-owned assets and bear the social responsibilities at the same time. For example, the Beijing State-owned Cultural Assets Supervision and Administration office, which was established in 2012, focuses on the supervision and regulation of culture-related assets. It does not act as the Provincial SASAC, which supports its listed firms' output targets. The Asset Bureaus as state-owned asset

management agencies, and these are further classified into the administrative level to which they belong: central, provincial or municipal level.

Government Departments are the non-asset management departments of the government, such as finance bureaus, education bureaus, railway bureaus etc., at central, provincial and municipal levels. The listed firms owned by the Government Departments are high-tech companies (controlled by the education bureaus), financial companies (controlled by the finance bureaus), infrastructure companies (controlled by the railway bureaus) and so on. They also need to fulfil social responsibilities such as maintaining employment. In contrast to the SASAC, the Government Departments are not targeted to promote firm output, which is the responsibility of the SASAC. They focus more on firm profitability and efficiency, rather than social responsibilities. For example, Tsinghua Tongfang Co., Ltd. is a state-owned software company which was ultimately controlled by the Ministry of Education in 2010. As a state-owned listed firm, the company cannot avoid the social mission, but it also actively enlarged investment in high-tech products, scattered its investment projects, reduced risk and increased efficiency.

The State-owned Enterprises are the state-owned companies acting as legal persons and ultimately control the listed firms. For example, Central Huijin Investment Ltd. is the ultimate controller of the listed firm Bank of China. Compared to the SASAC, the State-owned Enterprises as the ultimate controllers of the listed firms are more profit oriented but less strongly connected with the government. The disadvantages of State-owned Enterprises as controllers include lack of sufficient support to the listed firms and fewer capital resources for investment.

Government is the integration of governmental agencies and departments. A number of the annual reports of listed firms' in the sample indicate that the firms are ultimately controlled by the Government, not the SASAC or Government Department. The financial reports of listed firms do not show the specific entities by whom the listed firms are controlled, so I treat the ultimate controllers of these listed firms as the Government. The Premier, Li Keqiang, said governments at all levels must implement fair regulations and decentralise power to increase market vitality and social creativity (Lu, 2016), which means the government itself as the ultimate controllers of the listed firms needs to consider as many outcomes as possible when implementing policies, such as absorbing employment and avoiding inefficiency at the same time. The Government as controller does not set the firms output as a target, as the political support is oriented to the large firms that are already owned by the SASACs. The Government at the Central Level is the State Council, which is the highest state administrative organ, but it does not own any listed firms, so we exclude the Government at the Central Level. The classification in the paper includes Provincial Government (such as government of Zhejiang Province) and Municipal Government (such as government of Hangzhou city).

A Public Institution is a social service organisation established by the government operating in education, science and technology, culture, health, media or other areas; this includes, for example, universities, press and television stations. These institutions are not profit-oriented and they undertake social responsibilities. For example a university can be classified as a Public Institution and can own the shares of listed companies. These Public Institutions are not necessarily represented by professional managers. For example, the top management of a listed firm controlled by the universities may be elected from the staff of the university, who do not necessarily have enough knowledge to build market oriented operational mechanisms. This could in turn lead to low profitability, low productivity, low output levels and other

inefficiencies. Most of the Public Institutions (such as China Agricultural University) are affiliated to the local authorities (Ministry of Education in this case), and therefore I do not further divide them into administrative levels.

In addition, I also classify the Foreign and Private controllers into Enterprise and Individual. The Individuals are distinguished from Enterprises, which are entities of different natures. Individuals as ultimate controllers tend to maximise firm value and improve firm efficiency to generate more profit, while Enterprises as ultimate controllers may expropriate their affiliated listed firms to pursue private benefits, which result in inefficiencies in the listed firms. Foreign Enterprise is a common investment vehicle for mainland China-based business, wherein foreign parties can incorporate a foreign-owned limited liability company. Foreign Individual refers to individuals who are not citizens of China, including the individuals from Hong Kong, Macao and Taiwan. Private Enterprise refers to a business or company that is managed by an independent company or private individual rather than being controlled by the state. Private Individual refers to the individuals who are domestic citizens of China, excluding the individuals from Hong Kong, Macao and Taiwan.

Other controllers include Operating Unit, Collectively-owned Enterprise and Social Organisation. They are legacies from the planned economy and cannot be classified into State, Foreign and Private categories. Operating Unit is a type of economic organisation with its own name, address, fixed place of operation, institutional framework, financial system, and employees. Enterprise Operating Unit cannot have legal person status, control and dispose of the property or bear civil liability independently. Operating Unit cannot be treated as a complete company. Collectively-owned Enterprise refers to an independent commodity-economy organisation based on public ownership where the profit of production benefits all its

members. A collectively-owned Enterprise is a feature of socialism and is not owned by any specific entity or individual. Social Organisation is a pattern of relationships between and among individuals and social groups. For example, Employee Shareholding Committee of Dachang Group Co., Ltd. and Labour Union Committee of Hainan Airlines Co., Ltd. Are classified into this category. These organisations are official or unofficial leagues, associations or groups that can hold shares of listed firms but do not have the nature of a company.

Therefore, the new classification includes four major categories: state, foreign, private and other. The state category is further divided into 14 sub-categories based on the administrative level, function and objective, namely Central State-owned Enterprise, Local State-owned Enterprise, Central Department, Provincial Department, Municipal Department, Central Asset Bureau, Provincial Asset Bureau, Municipal Asset Bureau, Central SASAC, Provincial SASAC, Municipal SASAC, Provincial Government, Municipal Government, Public Institution. The foreign category includes Foreign Individual and Foreign Enterprise. The private ownership category comprises Private Individual and Private Enterprise. Other ownerships such as Operating Unit, Collectively owned Enterprise and Social Organisation are classified into Other. The explanations for every ownership type are presented in Table 2.2.

Insert Table 2.2

The distribution of firm types over all the sample years is presented in Table 2.3. I identify the types of listed firms based on the ultimate controllers. The firms controlled by one of the state controllers are identified as state-controlled enterprises; the firms controlled by one of the foreign controllers are identified as foreign enterprises; the firms controlled by one of the private controllers are identified as private enterprises; and the firms controlled by of the other controllers are identified as other enterprises. The distribution shows that state-controlled

enterprises accounted for 74.37% of all listed firms in 2003. The proportion of state-controlled enterprises dropped gradually year by year, to 56.29% in 2009 and 37.36% in 2015. Meanwhile, the portion of private enterprises increased from 13.1% in 2003 to 56.09% in 2015. The number of private enterprises exceeded state-controlled enterprises in 2011. This is the effect of a series of reforms by Chinese government, especially the Split Share Reform in 2005, which led to an increase of private enterprises. From 2005 to 2010, the percentage of private enterprises almost doubled and that of SOEs declined by about a quarter. Figure 2.3 displays the trends of state-controlled, private and foreign enterprises. The proportion of foreign enterprises has stable over the past decade.

Insert Table 2.3, Figure 2.3

Figure 2.4 shows the distribution of the listed firms, with 21 types of ultimate controllers, from 2003 to 2016. Local state-owned enterprises were the most common controllers of SOEs in 2003, but they were gradually replaced by SASAC from 2004. This is due to the establishment of SASAC in 2003. Central SASAC, provincial and municipal SASAC constantly supersede other state controllers.

Insert Figure 2.4

The control structure model shows that the ultimate controller owns the business groups and decides the listed firms' development direction. The new classification is better than that used in previous literature because the definition of state ownership in literature has been broad without distinguishing among administrative levels or functions of the state. The of literature either uses share type to represent the ownership, which obscures the real owners of the shares (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) or fails to distinguish the state-controlled listed firms by functions and objectives, nor the

administrative levels (Chen et al., 2011; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). For example, by studying the policies of the government, which are shown in the hypotheses development section, I discuss that the state assigns the output mission for the state-owned listed firms at central and provincial levels. With the new classification, it is possible to investigate whether the listed firms at central and provincial levels fulfil the requirements from the government. However, the classification in previous literature cannot distinguish firms at different administrative levels and examine what is investigated in the chapter.

2.3.3 Ownership Variables

Following the definitions of ownership in La Porta, Lopez-de-Silanes and Shleifer (1999)'s study, I use voting rights to represent the ownership in the thesis. I identify the entity with most of the voting rights as the ultimate controller in this chapter. I use dummy variables to represent the types of ultimate controllers in the chapter. Firstly, I use four dummy variables identifying four major ultimate controllers to study their effects on firm performance. The dummy variables are:

Dummy.State equals 1 when the ultimate controller of the listed firm is SASAC, Asset Bureau, Government, Department, SOE or Public Institution, otherwise 0;

Dummy.Foreign equals 1 when the ultimate controller of the listed firm is Foreign Enterprise or Foreign Individual, otherwise 0;

Dummy.Private equals 1 when the ultimate controller of the listed firm is Private Enterprise or Private Individual, otherwise 0;

Dummy.Other equals 1 when the ultimate controller of the listed firm is Operating Unit, Collectively owned Enterprise or Social Organisation, otherwise 0.

Then, I apply twenty-one dummy variables representing the fourteen state ultimate controllers, two foreign ultimate controllers, two private ultimate controllers and three other ultimate controllers. The dummy variables are:

Dummy.PublicInstitution equals 1 when the ultimate controller of the listed firm is Public Institution, otherwise 0;

Dummy.CentralAssetBureau equals 1 when the ultimate controller of the listed firm is Central Asset Bureau, otherwise 0;

Dummy.CentralDepartment equals 1 when the ultimate controller of the listed firm is Central Department, otherwise 0;

Dummy.CentralSASAC equals 1 when the ultimate controller of the listed firm is Central SASAC, otherwise 0;

Dummy.CentralSOE equals 1 when the ultimate controller of the listed firm is Central State-owned Enterprise, otherwise 0;

Dummy.LocalSOE equals 1 when the ultimate controller of the listed firm is Local State-owned Enterprise, otherwise 0;

Dummy.ProvincialAssetBureau equals 1 when the ultimate controller of the listed firm is Provincial Asset Bureau, otherwise 0;

Dummy.ProvincialDepartment equals 1 when the ultimate controller of the listed firm is Provincial Department, otherwise 0;

Dummy.ProvincialGovernment equals 1 when the ultimate controller of the listed firm is Provincial Government, otherwise 0;

Dummy.ProvincialSASAC equals 1 when the ultimate controller of the listed firm is Provincial SASAC, otherwise 0;

Dummy.MunicipalAssetBureau equals 1 when the ultimate controller of the listed firm is Municipal Asset Bureau, otherwise 0;

Dummy.MunicipalDepartment equals 1 when the ultimate controller of the listed firm is Municipal Department, otherwise 0;

Dummy.MunicipalGovernment equals 1 when the ultimate controller of the listed firm is Municipal Government, otherwise 0;

Dummy.MunicipalSASAC equals 1 when the ultimate controller of the listed firm is Municipal SASAC, otherwise 0;

Dummy.ForeignEnterprise equals 1 when the ultimate controller of the listed firm is Foreign Enterprise, otherwise 0;

Dummy.ForeignIndividual equals 1 when the ultimate controller of the listed firm is Foreign Individual, otherwise 0;

Dummy.PrivateEnterprise equals 1 when the ultimate controller of the listed firm is Private Enterprise, otherwise 0;

Dummy.PrivateIndividual equals 1 when the ultimate controller of the listed firm is Private Individual, otherwise 0;

Dummy.CollectivelyownedEnterprise equals 1 when the ultimate controller of the listed firm is Collectively owned Enterprise, otherwise 0;

Dummy.OperatingUnit equals 1 when the ultimate controller of the listed firm is Operating Unit, otherwise 0;

Dummy.SocialOrganisation equals 1 when the ultimate controller of the listed firm is Social Organisation, otherwise 0.

Moreover,

Dummy.WidelyheldFirm equals 1 when listed firm has no ultimate controller, otherwise 0.

This chapter aims at investigating the effects of different types of the ultimate controllers on firm performance, so I only include the dummy variables to identify the controller types. The

next chapters will study how ownership concentration, which is represented by the proportion shares owned by the largest shareholders or indirectly owned by the ultimate controllers, affects the relationship between controllers/directing controlling shareholders and firm performance. The direct controlling ownership percentage is examined in the chapter three and the ultimate controlling ownership is studied in chapter four.

2.3.4 Firm Performance Variables

To test the hypotheses, I include various firm performance measures in this chapter, including firm output, firm employment, firm profitability, firm labour productivity, firm investment and firm operating efficiency. The performance data is obtained from the financial reports of the listed firms.

Following the study of Liao, Liu and Wang (2014), I use the *Logarithm of operating revenue* to measure the firm output and the *Logarithm of the number of employees* to measure the firm employment. The output and employment missions are assigned by the government to the listed firm to fulfil the social responsibility. Using the measures, I can examine whether ultimate controllers of the state-owned listed firms have satisfied the social targets.

Following Sun and Tong (2003) and Liao, Liu and Wang (2014), I adopt ROA as a proxy for profitability. I calculate ROA as *Net profits/Average total assets*, where *Average total assets = (Total assets at the start of this year + Total assets at the end of this year) / 2*. Following Wei, Xie and Zhang (2005), I calculate Tobin's Q as *(Market Value of Equity + Book Value of Debt)/Book value of assets*, where *Book Value of Debt = Notes Payable + Current Portion of Long-term Debt (Non-current liabilities due within one year) + Long-term Debt*; *Book Value of Asset = Total Asset - Net Intangible Assets - Net Goodwill - Total Liabilities* and use it as

another profitability measure. The government does not set profit goals for state-owned listed firms. The previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021) has shown that state ownership is negatively related to firm profitability, and with the profitability measure I can investigate the incentives of different types of ultimate controllers to pursue profitability and compare the findings with previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021).

Following the study of Liao, Liu and Wang (2014), I use *Logarithm of operating revenue per employee* as a proxy for labour productivity. There is no productivity goal from the state for the listed firms either, but with redundant employees, the labour productivity of these state-owned listed firms should be low. To examine the hypothesis, I use the operating revenue divided by the number of employees to measure the labour productivity. As financial firms are dropped from the sample, the labour productivity is suitable to test the productivity of the listed firms.

Following the study of Liao, Liu and Wang (2014), I employ *Logarithm of capital expenditure (measured as change in gross property, plant, and equipment plus change in intangible assets)* as a proxy for investment. As the listed firms need to hand over their profits to the government, there is little capital left for investment. But the governmental agencies at the provincial level could enjoy the benefit of financial platforms, they have the capacity to invest. So, I use the change in gross property, plant, and equipment plus change in intangible assets of the listed firm every year to measure firm investment and study how the ultimate controllers affect firm investment.

Furthermore, the long-term protection from government leads to the low efficiency in state-owned listed firms. To estimate whether the state ultimate controller decreases firm efficiency, I use ROS to measure operating efficiency by following Sun and Tong (2003). The ROS is calculated as *Operating Profit/Operating Revenue*, where *Operating Revenue* is the revenue arising from the operating business of the company except interest income, net earned premiums, commissions and fees income.

I adjust all money units to inflation including Capital Expenditure and Operating Revenue based on Consumer Price Index (CPI 2003 =100). The CPI data is obtained from the National Bureau of Statistics of China. I also winsorize the performance measures at the 1% and 99% level to exclude extremum.

2.3.5 Control Variables

Following previous literature, I control firm level characteristics as follows. The data used to calculate control variables is obtained from the financial reports of the listed firms.

Ownership.Director, *Ownership.Supervisor*, *Ownership.Executive*, *Ownership.Management* are four variables measuring the fraction of shares held by the director, supervisor, executive and management. Following by Demsetz and Villalonga's (2001) study, I use these four variables to control for the effect of managerial ownership.

SSR is a dummy variable to control for the impact of Split Share Reform on listed firms. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0. Previous literature (Firth, Lin and Zou, 2010; Liao, Liu and Wang, 2014) has shown that Split Share Reform was a significant reform and altered the ownership structure

of listed firms of China, so I use the dummy variable to control for the influence of the Split Share Reform.

Size Following Wei, Xie and Zhang. (2005) and Chen et al. (2011), I control for firm size by using the logarithm of total assets. They discuss that larger firms may have more resources and more market power to improve output and investment. But large state-owned firms also encounter more government intervention and bureaucracy, which are detrimental to firm performance. Therefore, I use the variable to control for the effect of firm size.

Leverage Consistent with Bhagat and Bolton (2008), I compute leverage as (long-term debt + current portion of long-term debt (Non-current Long-term Liability due within one year)) divided by total assets. Gugler, Ivanova and Zechner (2014) discuss that large individual investors may choose a more highly leveraged firm to retain control, or they may choose lower leverage to reduce the risk of the firm and affect firm performance. The leverage is used strategically by controlling shareholders.

Age is the number of years since the firm's establishment. It is believed that as firms age, they become more complex and more mature in management. The mature management may have impeccable knowledge of how to operate the firm and benefit firm performance, but they may also benefit from the complexity of the aged firm and expropriate minority shareholders. Therefore, firm age may also be an appropriate control variable in the analysis (Chen, 2015).

Crisis is a dummy variable controlling for the impact of the recent financial crisis on listed firms. The global financial crisis in 2007 shocked the Chinese capital market, and the Chinese government then implemented several stimulation policies to recover the economy. I identify

the financial crisis period from 2007 to 2010. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0.

2.3.6 Descriptive Statistics

Table 2.4 presents the descriptive statistics and univariate results. I compare the mean value of the performance measures in the listed firms with different ultimate controllers. The results are shown in Table 2.4. I also estimate the significance of differences in firm performance of the listed firms depending on the ultimate controllers by using the ANOVA and the Tukey-Kramer test. I use the Tukey-Kramer test from UCLA (UCLA Website, 2018). UCLA provides three methods for post-hoc pairwise comparisons: Tukey HSD, Tukey-Kramer and Fisher-Hayter. The three methods will yield the same test statistic when the cell sizes are equal but will differ when cell sizes are unequal. The Tukey-Kramer or Fisher-Hayter tests are usually preferred when the cell sizes are unequal. As there are many variables in the descriptive statistics, I show the comparison groups which have significant differences at 5% in a separate table, Table 2.5.

Insert Table 2.4, Table 2.5

Table 2.4 show the mean value of various performance measures for listed firms with different controllers. The average value of performances varies depending on the types of controllers. The Central SASAC has a larger average number of employees than other controllers, which is expected since SASACs bear the responsibility of stabilising society and absorbing employees. The number of employees of SASAC-controlled listed firms decreases with their administrative level. Specifically, the Central, Provincial and Municipal SASACs have the average employee value of 3.501, 3.43 and 3.372 respectively. The SASACs, especially the Central SASAC, show higher labour productivity in operating revenue per employee than other controllers. Similarly to employment, the SASACs are also capable of investing more than

other controllers. There is no surprise that firms controlled by Central SASAC have the largest average output. Acting as the supervisor and manager of SOEs, the SASAC has sufficient resources and financial support from the government. The results in Table 2.4 provide an initial picture that the average value of firm performance varies depending on the type of ultimate controller. The state ultimate controllers at higher administrative level have stronger incentives to fulfil social responsibility, and the incentives become weaker when the state ultimate controllers are at lower administrative levels. The government also provides support for its affiliated listed firms.

I also present the times and frequency of ownership transfer from one ultimate controller to another in Table 2.6. On average, the listed firms in the sample transfer ownership 0.689 times. There are 1,872 firms with no ownership transfer and 6 firms transfer its ownership 6 times. There is only one firm that transfers its ownership every 1.2 years and 247 firms have only one ownership transfer in 14 years. On average a firm transfers its ownership every 9 years. Table 2.7 reports the correlations among the main variables. The results show that the state dummy variables are positively correlated to firm output and employment variables, but negatively correlated to other performance variables. An examination of the correlation matrix indicates that, except for the correlations among the ultimate controller variables, correlations are generally small, suggesting that collinearity is not a serious issue. The following subsections provide regression analysis to estimate the effects of ultimate controllers on firm performance.

Insert Table 2.6, Table 2.7

2.3.7 Methodology

To investigate the effects of ultimate controllers on firm performance, I follow Anderson and Reeb (2003), Gugler, Ivanova and Zechner (2014) and use fixed effects for firms and time in

all estimations and correct for heteroscedasticity. Because the Hausman Test shows that fixed effect is more suitable for the data set. Table 2.8 shows the results of Hausman Test for the effect of ultimate controllers on firm performance. The value of Prob > chi2 of all performance measure are less than 0.05, which means fixed effect should be adopted. I also use the Heckman Two-step Selection model to test the potential reverse causality problem of the control of SASAC. The results of the regression including inversed Mills' ratio λ show the reverse causality problem does not affect the findings in the chapter, so other regressions in this chapter do not include the λ .

Insert Table 2.8

Firstly, I study the relationship between the four major types of ultimate controllers and firm performance. The regression equation is described as follows:

2.a

$Performance_{i,t}$

$$\begin{aligned}
 &= \alpha + \beta_1 Dummy.State_{i,t} + \beta_2 Dummy.Foreign_{i,t} + \beta_3 Dummy.Private_{i,t} \\
 &+ \beta_4 Dummy.Other_{i,t} + \beta_5 Ownership.Director_{i,t} \\
 &+ \beta_6 Ownership.Supervisor_{i,t} + \beta_7 Ownership.Executive_{i,t} \\
 &+ \beta_8 Ownership.Management_{i,t} + \beta_9 SSR_{i,t} + \beta_{10} Size_{i,t} + \beta_{11} Leverage_{i,t} \\
 &+ \beta_{12} Age_{i,t} + \beta_{13} Crisis_{i,t} + \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

$Performance_{i,t}$ are the measures for firm performance of firm i in year t , including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.State*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is either SASAC, Asset Bureau, Government, Department, SOE or Public Institution, otherwise 0;

*Dummy.Foreign*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is either foreign enterprise or foreign individual, otherwise 0;

*Dummy.Private*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is either private enterprise or private individual, otherwise 0;

*Dummy.Other*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is either Operating Unite, Collectively owned Enterprise or Social Organisation, otherwise 0;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *I* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

*Age*_{*i,t*} is the number of years since the firm *i*'s establishment in year *t* to control for firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of the recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

Then, I apply twenty-one dummy variables representing the fourteen state ultimate controllers, two foreign ultimate controllers, two private ultimate controllers and three other ultimate controllers, to investigate the effects of the ultimate controllers on firm performance and test the hypotheses 1a~1d. The regression equation is described as follows:

2.b

$Performance_{i,t}$

$$\begin{aligned}
 &= \alpha + \sum_{n=1}^{21} \beta_n \text{Dummy.UltimateController}_{i,t} + \beta_{22} \text{Ownership.Director}_{i,t} \\
 &+ \beta_{23} \text{Ownership.Supervisor}_{i,t} + \beta_{24} \text{Ownership.Executive}_{i,t} \\
 &+ \beta_{25} \text{Ownership.Management}_{i,t} + \beta_{26} \text{SSR}_{i,t} + \beta_{27} \text{Size}_{i,t} \\
 &+ \beta_{28} \text{Leverage}_{i,t} + \beta_{29} \text{Age}_{i,t} + \beta_{30} \text{Crisis}_{i,t} + \gamma_1 \text{StockCode}_{i,t} + \gamma_2 \text{Year}_{i,t} \\
 &+ \varepsilon_{i,t}
 \end{aligned}$$

Where,

$\sum_{n=1}^{21} \beta_n \text{Dummy.UltimateController}_{i,t}$ is the sum of $\beta_1 \text{Dummy.PublicInstitution}_{i,t}$,
 $\beta_2 \text{Dummy.CentralAssetBureau}_{i,t}$, $\beta_3 \text{Dummy.CentralDepartment}_{i,t}$,
 $\beta_4 \text{Dummy.CentralSASAC}_{i,t}$, $\beta_5 \text{Dummy.CentralSOE}_{i,t}$, $\beta_6 \text{Dummy.LocalSOE}_{i,t}$,
 $\beta_7 \text{Dummy.ProvincialAssetBureau}_{i,t}$, $\beta_8 \text{Dummy.ProvincialDepartment}_{i,t}$,
 $\beta_9 \text{Dummy.ProvincialGovernment}_{i,t}$, $\beta_{10} \text{Dummy.ProvincialSASAC}_{i,t}$,

β_{11} Dummy. *MunicipalAssetBureau*_{*i,t*}, β_{12} Dummy. *MunicipalDepartment*_{*i,t*},
 β_{13} Dummy. *MunicipalGovernment*_{*i,t*}, β_{14} Dummy. *MunicipalSASAC*_{*i,t*},
 β_{15} Dummy. *ForeignEnterprise*_{*i,t*}, β_{16} Dummy. *ForeignIndividual*_{*i,t*},
 β_{17} Dummy. *PrivateEnterprise*_{*i,t*}, β_{18} Dummy. *PrivateIndividual*_{*i,t*},
 β_{19} Dummy. *CollectivelyownedEnterprise*_{*i,t*}, β_{20} Dummy. *OperatingUnit*_{*i,t*} and
 β_{21} Dummy. *SocialOrgnasation*_{*i,t*};

*Dummy.PublicInstitution*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Public Institution, otherwise 0;

*Dummy.CentralAssetBureau*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Central Asset Bureau, otherwise 0;

*Dummy.CentralDepartment*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Central Department, otherwise 0;

*Dummy.CentralSASAC*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Central SASAC, otherwise 0;

*Dummy.CentralSOE*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Central State-owned Enterprise, otherwise 0;

*Dummy.LocalSOE*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Local State-owned Enterprise, otherwise 0;

*Dummy.ProvincialAssetBureau*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Provincial Asset Bureau, otherwise 0;

*Dummy.ProvincialDepartment*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Provincial Department, otherwise 0;

*Dummy.ProvincialGovernment*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Provincial Government, otherwise 0;

Dummy.ProvincialSASAC_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Provincial SASAC, otherwise 0;

Dummy.MunicipalAssetBureau_{i,t} is dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Municipal Asset Bureau, otherwise 0;

Dummy.MunicipalDepartment_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Municipal Department, otherwise 0;

Dummy.MunicipalGovernment_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Municipal Government, otherwise 0;

Dummy.MunicipalSASAC_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Municipal SASAC, otherwise 0;

Dummy.ForeignEnterprise_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Foreign Enterprise, otherwise 0;

Dummy.ForeignIndividual_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Foreign Individual, otherwise 0;

Dummy.PrivateEnterprise_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Private Enterprise, otherwise 0;

Dummy.PrivateIndividual_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Private Individual, otherwise 0;

Dummy.CollectivelyownedEnterprise_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Collectively owned Enterprise, otherwise 0;

Dummy.OperatingUnit_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Operating Unit, otherwise 0;

Dummy.SocialOrgnasation_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Social Organisation, otherwise 0;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

*Age*_{*i,t*} is the number of years since the firm *i*'s establishment in year *t* to control for firm age;

*Crisis*_{*i,t*} is a dummy variable controlling for the impact of the recent financial crisis on listed firm *i* in year *t*. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0;

*StockCode*_{*i,t*} is the fixed effects variable identifying the unique code of firm *i* in year *t*;

*Year*_{*i,t*} is the fixed effects variable identifying the year of firm *i* in year *t*.

To sum up, the sample used in this chapter is obtained from the CSMAR database and includes 3,077 firms, and 27,077 firm-year observations over the period from 2003 to 2016, after deleting firms in the financial industry, merged or deactivated firms and the firm-year observations if the information on the actual controller is missing. I identify the ultimate controller of each listed firm and categorise them based on their administrative level and

function, developing a new classification for the ownership of Chinese listed firms. There are twenty-one types of controllers in the new classification, which include fourteen types of state controllers, two types of foreign controllers, two types of private controllers and three types of other controllers. To provide a comprehensive analysis of the effects of ultimate controllers on firm performance, I include both financial and non-financial performance measures in this chapter, namely firm output, employment, profitability, labour productivity, investment, and operating efficiency. The performance data is obtained from annual reports of listed firms. With the new classification, I employ the fixed effects regression to analyse the relationship between ultimate controllers and firm performance. The results are presented in next section.

2.4 Empirical Results

The section shows the empirical results for this chapter. Section 2.4.1 shows the regression results of equation 2.a about the effects of the four major ultimate controllers' groups on firm performance. Section 2.4.2 shows the regression results of equation 2.b about the effects of the 21 types of ultimate controllers on firm performance. Section 2.4.3 estimates the potential endogeneity problems in the chapter. Section 2.4.4 employs several additional tests to check the robustness of the empirical results. At last, I conclude the empirical findings of the chapter.

2.4.1 Effects of Ultimate Controllers in Four Major Groups on Firm Performance

This subsection employs equation 2.a and shows the effects of the four main groups of ultimate controllers (State, Private, Foreign and Other) on firm performance. The results are presented in the Table 2.9.

Insert Table 2.9

Column 2 shows the results of the effects of the State, Private, Foreign and Other ultimate controllers on firm output. None of these ultimate controllers have an effect on firm output. The control variable SSR has a positive effect on firm output. The Split Share Reform, as a landmark reform in China's financial liberalisation, can increase firm output (Liao, Liu and Wang, 2014). I hypothesised that, as ultimate controllers, the SASAC and high administrative-level governmental agencies would have a positive impact on firm output (hypothesis 1a). But other governmental agencies do not receive the support from state to promote output. When treating all the state controllers as one category, the results show that state control does not affect firm output significantly.

Column 3 shows the results of the effects of the State, Private, Foreign and Other ultimate controllers on firm employment. The State ultimate controllers increase firm employment by 7.39% when they control the listed firms. Because I apply the logarithm of the number of employees to measure the firm employment, the log transformed results need to be interpreted properly. For example, the coefficient 0.0713 of Dummy.State needs to be exponentiated first, giving the exponentiated value 1.0739 ($\exp(0.0713) = 1.0739$). I derive the percentage change from the exponentiated number, when a state ultimate controller controls the listed firms, the number of employees increases by 7.39% compared to listed firms without ultimate controllers. For other log transformed performance measures, such as logarithm of operating revenue for firm output, logarithm of operating revenue per employee as proxies for labour productivity, logarithm of capital expenditure for investment, I interpret the coefficient by using the exponentiated value and in terms of percent change.

Column 4 shows the results of the effects of the State, Private, Foreign and Other ultimate controllers on firm ROA. Only the Other type of ultimate controllers have a positive effect on

firm ROA. Column 5 shows the results of the effects of the State, Private, Foreign and Other ultimate controllers on firm Tobin's Q. None of the ultimate controllers have an effect on firm Tobin's Q. The results are not consistent with the previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021), who find that state ownership is negatively related to firm performance.

Column 6 shows the results of the effects of the State, Private, Foreign and Other ultimate controllers on firm labour productivity. None of the ultimate controllers have an effect on firm labour productivity. The ultimate controllers at Central and Municipal level need to fulfil the employment mission which leads to low firm labour productivity. The ultimate controllers at Provincial level use juggling strategies and collusions to skimp or weaken the policy implementation. They focus on the improvement of firm operation and management rather than fulfilling social responsibilities. They do not have effects on employment and labour productivity. By mixing them together, I get the result that the ultimate controllers do not affect firm labour productivity. The estimation in this section lumps all the state ultimate controllers together to show how a broad state category affects firm performance. In the next section, I separate the ultimate controllers and investigate their effects on firm performance.

Column 7 shows results of the effects of the State, Private, Foreign and Other ultimate controllers on firm investment. The Foreign and Private ultimate controllers can increase the firm investment by 29.43% and 13.77% respectively. Liao, Liu and Wang (2014) point out that the investment is improved, though very slowly, after the Split Share Reform. Column 8 shows results of the effects of the State, Private, Foreign and Other ultimate controllers on firm operating efficiency. Private and Other ultimate controllers can increase the firm operating efficiency by 5.72% and 5.81% respectively when they control the listed firms. The results are

not consistent with the work of Wei, Xie and Zhang (2005) or Chen et al. (2008)'s study. They find that the state ownership is negatively related to firm ROS and that legal person ownership is positively related to firm ROS.

The results of the effects of the four major groups of ultimate controllers on firm performance are not consistent with previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021). These studies show that state ownership is negatively related to firms' profitability and operating efficiency, but the results in this section show no relationship between the state ultimate controllers and firm profitability or operating efficiency. The differences may be due to the new classification used in the chapter, which separates legal person ownership in the previous literature into State, Private, Foreign and Other categories and leads to different findings. But lumping different types of State, Foreign, Private and Other controllers into four major groups also obscures the accurate effects of different types of ultimate controllers on firm performance. The next subsection goes into detail about the effects of the 21 types of ultimate controller on firm performances.

2.4.2 Effects of Twenty-one Types of Ultimate Controllers on Firm Performance

The section applies equation 2.b to estimate the effect of 21 types of listed firm ultimate controllers on firm performance, measured as firm output, employment, profitability, labour productivity, investment and operating efficiency. The section has been divided into subsections based on the firm performance measures and the results are presented in Table 2.10.

Insert Table 2.10

2.4.2.1 Effects of Twenty-one Types of Ultimate Controllers on Firm Output

The subsection interprets the results about the effects of the 21 types of ultimate controllers on firm output. The results are shown in the column 2 of Table 2.10. The Central SASAC and Central Asset Bureau can improve firm output by 6.46% and 7.1 % when obtain the control rights. This is consistent with the idea that controllers at central level should obey and serve the national strategy, develop in conformity with legal provisions, and act as the representatives and pioneers of the times. In turn, the central enterprises could receive more benefits and supports from the central government, and then perform better than the enterprises controlled by the lower administrative levels. The results about the effects of twenty-one types of ultimate controllers on firm output show that the listed firms with the ultimate controllers at central levels receive long-term government supports. The findings are consistent with hypothesis 1a. The large and super large state-owned enterprises have become an important force and mainstay of the national economy in China. There is no previous literature showing this finding, as the literature (Liao, Liu and Wang, 2014) does not separate the state controllers into different administrative levels or functions. The new classification provides more accurate and nuanced results about the effects of different types of ultimate controllers on firm output.

2.4.2.2 Effects of Twenty-one Types of Ultimate Controllers on Firm Employment

This subsection interprets the results of the effects of the 21 types of ultimate controllers on firm employment. The results are shown in the column 3 of Table 2.10. Of the 21 controllers, 8 have positive impact on employment: the Central SASAC, Central Department, Central and Local State-owned Enterprises, Municipal Asset Bureau, Municipal Government, Municipal SASAC and Foreign Enterprise. Social Organisation has a negative effect. The coefficient of the Central SASAC is significantly positive at 1% level and larger than that of other central state controllers. The central firms have the political responsibility, social responsibility,

economic responsibility and the responsibility of the enterprise development. A central enterprise may fail in its obligations without bearing the responsibilities. The third plenary session of the 18th CPC Central Committee indicated that central enterprises should standardise their employment systems and eliminate the systematic obstacles and employment discrimination based on area, industry, identity, gender and other factors affecting equal employment. For example, central enterprises participated energetically in the recent Belt and Road Initiative (Li and Du, 2017). The Belt and Road is a development strategy proposed by Chinese government that focuses on connectivity and cooperation between Eurasian countries. There are 47 central enterprises investing in or cooperating with other countries' firms. These central enterprises are constructing 1,676 projects focusing on infrastructure construction, energy construction and performing social responsibility, such as ecological environmental protection, employment problems and public welfare establishments. PetroChina promotes employment by providing more than 30,000 jobs in Kazakhstan, sponsors education by funding international students, improves people's livelihoods by building and reconstructing 72 schools, 30 hospitals, power facilities, water supply facilities, roads, and bridges. Employment is a primary objective of state-owned enterprises, especially the central enterprises. The Central SASAC, as the controller, has greater responsibility for employment than the other state controllers.

The results of the effects of the 21 types of ultimate controllers on firm employment show that most ultimate controllers have positive effects on firm employment, which is consistent with hypothesis 1b. Liao, Liu and Wang. (2014) also have showed that SOEs' employment was boosted after the Split Share Reform, but no previous literature distinguishes the effects of different types of ultimate controllers on firm employment. The results in this subsection

provide the evidence that central and municipal enterprises have stronger motivations to improve employment than the other state controllers.

2.4.2.3 Effects of Twenty-one Types of Ultimate Controllers on Firm Profitability

This subsection interprets the results about the effects of the 21 types of ultimate controllers on firm profitability. The results are shown in the columns 4 and 5 of Table 2.10. Column 4 shows the results for ROA. The Central Asset Bureau has a positive effect on firm ROA, while Municipal Asset Bureau and Municipal SASAC are negatively related to ROA. Specifically, when the Central Asset Bureau controls the listed firm, the firm ROA increases by 2.98%, but there is a decrease of -1.83% and -1.47% if Municipal Asset Bureau and Municipal SASAC control. Control by Private, Foreign Individuals and Social Organisation also increase firm ROA, by 1.07%, 2.36% and 2.48% respectively. Column 5 shows the results for Tobin's Q. Central SASAC and Municipal Government have a negative effect on the Tobin's Q with coefficients of -0.947 and -1.030, significant at 10% level.

The results about the effect of controllers on firm profitability in columns 4 and 5 show that some governmental controllers have a negative effect on firm profitability, such as Central SASAC, Municipal Asset Bureau, Municipal Government and Municipal SASAC. There are agency conflicts between these ultimate controllers and minority shareholders. However, other governmental controllers are positively related to firm profitability, such as Central Asset Bureau. The finding is inconsistent with previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021), which report a negative relationship between state ownership and firm performance. As already stated, these studies do not separate different governmental agencies and treat the state share as one type of ownership; however, different forms and levels of state ownership can lead to different

firm performance results. The positive relationship between Central Asset Bureau and firm ROA implies the significance to categorise different governmental agencies and examine their effects on firm performance separately. Central Asset Bureaus are the asset management and operation departments affiliated to central government, besides SASAC. There are two Central Asset Bureaus acting as the ultimate controller in the sample, namely Orient Asset Management Bureau and State-owned Assets Administration Department. They are professional state-owned assets management entities and aim at asset value appreciation. As asset management bureaus, they have an obligation to maintain and increase the value of state-owned assets. They do not have to fulfil the social responsibilities which are mainly accomplished by the SASAC, but they have stronger incentives to generate profits and improve firm profitability.

Foreign Individual and Private Individual control both have a positive relationship with firm profitability. The results are consistent with Wei, Xie and Zhang (2005)'s work. They discuss that foreign investors can monitor and positively impact the firm, since the presence of foreign ownership drives management to perform in accordance with firm value maximisation. Foreign ownership can also provide access to international capital resources, advanced technology, and superior managerial expertise. Conservation of the access is profitable to shareholders and firms. Firms controlled by a Private Individual are actively monitored by that individual, and in fact the private controllers usually appoint themselves or representatives as chairman of the board. These controllers or representatives have the managerial and industrial knowledge to operate a company and effectively monitor the management. Moreover, as the private controller could receive more dividends from the efficient daily operation, the agency conflicts between ownership and management can be mitigated when a private individual is the

controller. Given the discussion, the foreign and private controllers are expected to have positive effect on firm profitability.

The coefficients of Municipal SASAC and Municipal Asset Bureau related to ROA are -0.0147 and -0.0183, respectively. The results show that when Municipal SASAC and Municipal Asset Bureau control the listed firms, the ROA of listed firms decreases by -1.47% and -1.83%. The Municipal SASAC has less negative effect on ROA than Municipal Asset Bureau. As already stated, the SASAC is acting on behalf of the State Council and takes charge of the daily management of the supervisory panels, with a wide variety of responsibilities. The SASAC is expected to manage and monitor the listed firm more efficiently. The agency problems are less severe in the SASAC-controlled listed firms than others.

It is interesting to note that unlike the Municipal Asset Bureau, the Central Asset Bureau is positively associated with ROA. The Chairman of the Board of State Development and Investment Corporation, Wang Huisheng, points out in a conference on 22nd June 2017 (Wang and Du, 2017) that a firm given the title of central enterprise takes on the largest social responsibilities. Controllers at central level should obey and serve the national strategy, develop in conformity with legal provisions and act as the representative and pioneers of the times, while in turn, central enterprises expect to receive more benefit and support from the central government, and thus perform better than enterprises controlled by lower administrative levels. The finding implies that privatisation is not the only implement benefiting the profitability of a listed firm; transformation of control rights to Central Asset Bureau from other state controllers can also improve firms' profitability.

In sum, the results on the effects of the 21 types of ultimate controllers on firm profitability are inconsistent with previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021). The Central Asset Bureau as ultimate controller has a positive effect on firm ROA, showing that it is necessary to separate different types of state ultimate controllers, as not all of them have to fulfil social responsibility at the cost of firm profitability. In addition, SASACs do less damage to firm profitability than other controllers and the central enterprises may receive more benefits and supports from the central government, and thus perform better than the enterprises controlled by lower administrative levels. The findings are in accord with hypothesis 1c.

2.4.2.4 Effects of Twenty-one Types of Ultimate Controllers on Firm Productivity

This subsection interprets the results of the effects of the 21 types of ultimate controllers on firm productivity. The results are shown in the column 6 of Table 2.10. The listed firm controlled by Central Asset Bureau have a 26.62% increase in the operating revenue per employee than the companies without controllers. Central Department, Local State-owned Enterprise, Municipal Asset Bureau, Municipal Government and Municipal SASAC are negatively associated with operating revenue per employee. This is consistent with the hypothesis 1d. Most state controllers have negative effects on the labour productivity except the Central Asset Bureau. The Asset Bureau is either the precursor, the sub-level entity of SASAC or a sole asset management department focusing on culture, education etc. As a distinguished asset management entity, the asset bureau perform separately from SASAC. Other state controllers have to sacrifice labour productivity to fulfil social tasks. Compared with other state controllers at the same level, SASAC also performs better in labour productivity.

The results on the effects of the 21 types of ultimate controllers on firm labour productivity show that not all state ultimate controllers have a negative effect on firm labour productivity. The Central Asset Bureau as the ultimate controller can significantly increase the firm labour productivity when they control the listed firms. No other literature has shown the positive relationship between the Central Asset Bureau and firm labour productivity before. Liao, Liu and Wang (2014) discuss that the labour productivity is improved by the privatized reform, but there is no significant difference between the SOEs and non-SOEs, as they treat the state controllers as one and do not distinguish them at different administrative levels. The Central Department, Local State Enterprise, Municipal Asset Bureau, Municipal Government or Municipal SASAC has few interests in improving firms' labour productivity, which causes agency problems in their firms. In addition, the SASAC also performs better in the labour productivity than other types of state ultimate controllers. With the support from government, it can mitigate the negative impacts on firm productivity.

2.4.2.5 Effects of Twenty-one Types of Ultimate Controllers on Firm Investment

This subsection interprets the results of the effects of the 21 types of ultimate controllers on firm investment. The results are shown in column 7 of Table 2.10. The Provincial Department and Provincial SASAC increase the firm investment by 22.51% and 14% respectively when they control the listed firms. Foreign Controllers, Private Individual and Operating Unit also have a positive impact. State controllers at the Provincial level not only enjoy political benefits, but also have access to numerous financing platforms to help them raise capital and invest. The positive relationship between Foreign Individual and investment shows that foreign controllers can get access to international capital and benefit the firm and shareholders (Wei, Xie and Zhang, 2005).

These results show that some types of ultimate controllers, Provincial Department and Provincial SASAC, have positive effects on firm investment. Separating the state ultimate controllers gives the differentiated results, in contrast to the previous section which showed no state ultimate controller had an effect on firm investment. The positive relationship between Provincial Department/SASAC and firm investment provides the evidence that the ultimate controllers at the Provincial levels have the access to sufficient capital for investment. Liao, Liu and Wang (2014) also show that the SOEs could mitigate the decrease of investment after privatization than non-SOEs, which means the SOE benefits firm investment.

2.4.2.6 Effects of Twenty-one Types of Ultimate Controllers on Firm Operating Efficiency

This subsection interprets the results of the effects of the 21 types of ultimate controllers on firm operating efficiency. The results are shown in the column 8 of Table 2.10. The Central Asset Bureau, Provincial Department, Foreign Individual, Private Individual and Social Organisations are all positively related to firm operating efficiency. When the Central Asset Bureau controls the listed firms, the firm operating efficiency increases by 9.95%. And the Provincial Department, Foreign Individual, Private Individual and Social Organisations increase the firm operating efficiency by 7.45%, 9.29%, 6% and 7.5% respectively. The provincial state controller is the mediation between the central and grassroots organisations. Without direct supervision, the provincial controllers use juggling strategies to weaken the policy implementation. They focus on the improvement of firm operation and management rather than fulfilling social responsibilities. Bai, Lu and Tao (2006) point out that the local governments capture only a part of the external benefits of social stability and therefore do not have sufficient incentives to maintain social stability. The results also indicate that foreign and private controllers can monitor and positively affect the operation and management of the firms.

Wei, Xie and Zhang (2005) discuss that the presence of foreign ownership could force managers to align their interests with firm value maximization.

These results are inconsistent with the previous research of Sun and Tong (2003). They indicate that state and foreign ownership are negatively related to firm operating efficiency (ROS), but that legal person ownership positively influences it. The differences can be attributed to the reason that the previous study treats all types of ownership as one instead of separating them based on their motivations in operating the listed firms. The positive effects of Central Asset Bureau, Provincial Department, Foreign Individual, Private Individual and Social Organisations on firm operating efficiency show that these ultimate controllers have a stronger incentive to improve firm inefficiency.

The R-squared in this chapter is relatively low for the performance measures ROA, Tobin's Q and ROS, at 5.2%, 8.5% 4.2% respectively. Comparing this to previous literature, R-squared is 20% for ROA as a performance measure in Cao, Pan and Tian's study (2011), 18% for Tobin's Q as a performance measure in Wei, Xie and Zhang's study (2005), and 37% for ROS as a performance measure in Sun and Tong's study (2003). The reason is that I use more variables than those in literature. The literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Cao, Pan and Tian, 2011) uses four right-hand-side variables on average. The chapter employs 21 dummy variables to represent 21 types of ultimate controllers. These ultimate controllers have distinguished incentive in improving firm profitability and efficiency. For example, most state controllers are not market orientated; they need to fulfil social responsibilities and have low profitability and efficiency, but some, such as the Central Asset Bureau, private or foreign controllers, care more about profitability and efficiency. These diverse objectives are scattered among the ultimate controllers and lead to ROA, Tobin's Q

and ROS with massive differences. Therefore, the R-squared for these performance measures is low.

Meanwhile, the R-squared in this chapter is higher when Operating Revenue is used as the dependent variable compared to other alternative dependent variables. This is because the government has set output targets for the large state-owned enterprises and provides support to them. The R-squared shows how much variation of a dependent variable is explained by the independent variable. When most of the enterprises perform in line with the government targets, R-squared is high. The previous study, which uses the Operating Revenue as the dependent variable, shows a low R-squared at 5.45% (Liao, Liu and Wang, 2014). The reason that the R-squareds are different could be due to that the purpose of the hypothesis explored in the previous study is different and its baseline model includes different variables, and the time period is also different. Moreover, the government gives employment mission to the state-owned enterprises, but some state controllers such as the controllers at provincial levels leave the mission to the municipal levels, their employment performance is different. Also, the government does not set other performance targets. The state controllers have diverse objectives and perform differently. Therefore, the R-squared in the results of other performance is low.

To sum up, different types of controllers have distinct impacts on firm performance. The findings are summarised as follows. First, the effects of state controllers are inconsistent. Previous studies report a negative relationship between the state ownership and firm performance (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021). However, the results in this chapter show that some of state controllers can have positive impacts on profitability, employment, investment,

operating efficiency and firm output, which covers most of the performance measures in the chapter, while others may decrease firm performance. The finding is consistent with the argument that the state-controlled enterprises have the political responsibility, social responsibility, and economic responsibility. Employment is a primary objective of state-controlled enterprises, especially the central enterprises. And the state controllers have a close relationship with the authorities and easily access to the sources.

Second, different types of state controllers have distinguishing effects on firm performance. For example, the Municipal Asset Bureau decreases the firm profitability and productivity, but the Central Asset Bureau has a positive effect on firm profitability and productivity. Previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021) shows the negative relationship between state ownership and firm profitability but does not distinguish between different types of state controllers. Therefore, they cannot achieve more nuanced results, such as the positive relationship between Central Asset Bureau and firm profitability. It is significant to distinguish different types of state controllers when estimating their effects on firm performance.

Third, the state controllers at higher administrative levels perform better than those at lower levels in the areas of profitability, employment and labour productivity. The controllers at central level should obey and serve the national strategy, develop in conformity with legal provisions; in turn they receive significant supports from the central government and perform better than the enterprise at lower administrative level.

Fourth, the SASAC perform better than other state controllers. The results in the study show that the SASAC has fewer negative impacts than other governmental agencies at the same

administrative level. Fifth, Private and Foreign Individuals have a positive effect on firm profitability, investment and operating efficiency. Previous studies show a positive relationship between foreign ownership and firm profitability (Wei, Xie and Zhang, 2005) and a negative relationship between foreign ownership and firm operating efficiency (Sun and Tong, 2003). The conflicts may be due to previous studies treating Foreign Enterprise and Individual control as one type of ownership. Individuals as ultimate controllers tend to maximise the firm value and improve firm inefficiency to generate more profits, while the enterprises as ultimate controllers may expropriate their affiliated listed firms to pursue private benefits, resulting in inefficiency of the listed firms. Also, Liao, Liu and Wang (2014) show that there is no significant difference in labour productivity between SOEs and non-SOEs. In the chapter, the results present that the Central Asset Bureau as ultimate controller has a positive effect on SOEs' labour productivity, but Foreign or Private Controllers have no significant impact. This is because the previous study by Liao, Liu and Wang (2014) did not distinguish the state controllers and treat them as one entity.

At last, the results in this chapter show whether the agency problems exist in listed firms owned by different ultimate controllers. There is no agency conflict between central-level ultimate controllers and minority shareholders in improving firm output and employment. The Central Asset Bureau has interests in increasing ROA and labour productivity. The Provincial Department and SASAC can boost firm investment. The Central Asset Bureau and Provincial Department increase firm operating efficiency, which also benefits minority shareholders. On the contrary, there are interest conflicts between Central SASAC, Municipal Asset Bureau, Municipal Government or Municipal SASAC and minority shareholders to promote firm profitability. The Central Department, Local State Enterprise, Municipal Asset Bureau, Municipal Government or Municipal SASAC has few interests in improving firms' labour

productivity, which also causes agency problems in their firms. Moreover, the agency problems are less severe in the SASAC-controlled listed firms than others since the SASAC has the responsibility to operate state-owned assets efficiently.

2.4.3 Reverse Causality Problem of SASAC

The SASAC was established in 2003 and the number of SOEs controlled by the SASAC has been steadily increasing since then. As estimated in the previous part, the SASAC as controller has less adverse impact than other state controllers on the performance of listed firms. There is reason to believe that the controlling rights by the SASAC are affected by the firms' performance to some extent. The Chinese government always attaches importance to the pillar firms and may select firms with outstanding performances and transfer the controlling rights to SASAC. A potential concern with the regressions is that controlling rights may not be exogenous and some firm performances could result in the fixed effects model's coefficients being biased. There may, therefore, be a reverse causality problem due to the existence of selection bias of SASAC.

The Heckman selection model (Gronau, 1974; Lewis, 1974; Heckman, 1976) assumes that there exists an underlying regression relationship:

$$y_j = x_j \beta + u_{1j} \text{ Regression Equation}$$

The dependent variable, however, is not always observed. Rather, the dependent variable for observation j is observed if

$$z_j \gamma + u_{2j} > 0 \text{ Selection Equation}$$

where

$$u_1 \sim N(0, \sigma)$$

$$u_2 \sim N(0, 1)$$

$$\text{corr}(u_1, u_2) = \rho$$

When ρ does not equal 0, standard regression techniques applied to the first equation yield biased results. The two-step estimates are computed using Heckman's (1979) procedure.

Probit estimates the selection equation

$$\Pr(y_j \text{ observed} | z_j) = \Phi(z_j \gamma)$$

From these estimates, the non-selection hazard, which Heckman (1979) refers to as the inverse of the Mills' ratio, m_j for each observation j is computed as

$$m_j = \phi(z_j \gamma') / \Phi(z_j \gamma')$$

where ϕ is the normal density.

In the chapter, I model the control of SASAC as the endogenous variable. I use the *Dummy.SASAC* to represent the control of SASAC. *Dummy.SASAC* is a dummy variable that equals 1 when the ultimate controller of the listed firm is SASAC, otherwise 0. Following the Maury (2006), I include the Tobin's Q of the previous year, which is represented by Tobin's Q_{t-1} , in the first stage *Probit* model, as the performance may affect the SASAC's control over the listed firms. The *Probit* model also includes all control variables in the chapter. Then I regress the performance measures on the control of 21 types of ultimate controllers, which are represented by 21 dummy variables same as those in equation 2.b., with all control variables and inversed Mills' ratio *lambda* from the first stage. In this estimation, the listed firms without ultimate controllers are used as the baseline. The results are presented in the following Table

2.11. The coefficient of *Dummy.SASAC* in the first stage in Table 2.11 is -0.0017 and significant at 5% level. Even though the coefficient of *Dummy.SASAC* is small, it shows that the SASAC is more likely to control the listed firms with low firm value. The firms receive more support if they have a more significant impact on social stability (Cowen, Ferreri and Parker, 1987) and attract more attention from politicians (Faccio, Masulis and McConnell, 2006). If a firm announced bankruptcy, the employment rate would be substantially decreased. In their study, Lee, Walker and Zeng (2014) show that the government would assist failing firms to survive in order to avoid the decrease in employment. In other words, the state tends to control the firms with low value to help them survive. The *lambdas* in the second stage are significant in the estimations for firm output and investment. The corrected results show that the Central Asset Bureau and Central SASAC as ultimate controllers are positively related to firm output, which is consistent with previous findings. And the *lambdas* are not significant for the employment, profitability, labour productivity and operating efficiency, which means that selection bias and reverse causality problem do not affect the findings for these performance measures.

Insert Table 2.11

2.4.4 Robustness Check

This section employs several additional estimations to check the robustness of the findings in the chapter. Firstly, following Wei, Xie and Zhang (2005), Cao, Pan and Tian (2011), Chen et al. (2011), Jiang, Rao and Yue (2015), Liu, Wang and Zhu (2021), I use alternative performance measures, namely Operating Profit, Net Profit Margin, Operating Profit per Employee, Expense Ratio, to re-examine the effects of the 21 types of ultimate controllers on firm performance. Then, as the Split Share Reform was a crucial reform and altered the ownership of most listed firms, I divide the sample into three sub-groups based on years,

namely 2003 to 2005, 2006 to 2009, 2010 to 2016, and re-estimate the relationship between the ultimate controllers and firm performance.

2.4.4.1 Alternative Performance Measures

Liao, Liu and Wang (2014) provide various performance measures. Following their study, I apply

Logarithm of operating profit as an alternative measure for firm output;

Net profit margin = Net profit/Operating Revenue as the alternative measure for profitability;

Logarithm of operating profit per employee as the alternative proxy for labour productivity;

And

Expense Ratio, which is the ratio of selling and financial expenses to operating revenue, as the alternative measure of operating efficiency.

As the expense ratio is calculated as the selling and financial expenses divided by operating revenue, the smaller the expensive ratio, the more efficient the firm's operation. The results are presented in Table 2.12 and present similar findings to the above, showing that the main findings in chapter are robust. The Central Asset Bureau as the ultimate controller has a positive effect on firm output, profitability and productivity. The Provincial Department improves firm profitability, but the Municipal Asset Bureau, Municipal Government and Municipal SASAC damage firm labour productivity when they control the listed firms. The former group enjoys more flexibility to implement social missions, while the latter needs to fulfil social responsibility which results in low productivity.

Insert Table 2.12

2.4.4.2 Sub-Samples Estimation

The Split Share Reform granted legitimate trading rights to the state-owned shares of listed firms and adopted the market mechanism which played an effective role in aligning the interests of the government and public investors (Liao, Liu and Wang, 2014). To check whether the Split Share Reform affects the findings in the chapter, I divide the sample into three groups, sub-sample from 2003 to 2005, sub-sample from 2006 to 2009, and sub-sample from 2010 to 2016, and re-run the regression 2.b to estimate the effects of ultimate controllers on firm performance in the sub-samples. As the sub-samples are divided based on the Split Share Reform, I remove the control variable *SSR*. In the sub-sample from 2003 to 2005, financial crisis does not occur. So I also remove the control variable *Crisis* in the sub-sample from 2003 to 2005. In addition, there is no firm controlled by the Central Asset Bureau before 2005 or after 2010, no firm controlled by an Operating Unit from 2003 to 2009. I drop the *Dummy.CentralAssetBureau* and *Dummy.OperatingUnit* in the corresponding sub-samples to avoid collinearity.

The results for the sub-sample from 2003 to 2005 are shown in Table 2.13. There are very few ultimate controllers that significantly affect firm performance. As the shares were non-tradable before 2005, the ultimate controllers have no incentive to improve firm performance or expropriate minority shareholders. No matter which type of the ultimate controller was, the controller did not affect firm performance. Wei, Xie and Zhang (2005) use the share types to represent state ownership and find the state ownership is negatively related to firm value from 1991 to 2001. They discuss that when state ownership decreases, the market discipline and monitoring become effective in reducing agency costs, and then the firm value increases. My findings are different from that of Wei, Xie and Zhang (2005). This is because Wei, Xie and Zhang (2005) do not separate the different types of state shareholders but estimate how the

ownership of state shareholders is related to firm value. Even the state controllers had no incentives to affect firm performance when their shares were not tradable, investors may be convinced that the government is committed to privatisation when state ownership decreases. Market monitoring becomes effective in reducing agency cost and firm value increases.

The results of the sub-sample from 2006 to 2009 are shown in Table 2.14. During the reform period, the Central Department as the ultimate controller increased firm employment and decreased profitability and productivity accordingly. As the non-tradable shares began to be transformed to tradable ones, the objectives among ultimate controllers changed. The state sold the shares of the listed firms they did not want to maintain control rights for and kept those that could fulfil social missions. Also, Municipal Asset Bureau as the ultimate controller boosted firm value because it actively introduced outside investors.

The results of the sub-sample after 2010 are shown in Table 2.15. The incentives of state ultimate controllers to fulfil social missions are revealed. The Central SOE, Local SOE, Provincial SASAC, Municipal Asset Bureau and Municipal SASAC as ultimate controllers absorb employment but damage firm profitability and productivity. None of the state ultimate controllers has a significant effect on the Tobin's Q of the listed firms. The results are not consistent with Wei, Xie and Zhang's (2005) study. This is due to the government does not assign objectives about firm value, so the state ultimate controllers have no incentives to affect firm value.

The three sub-samples present the motivations of ultimate controllers at different stages, before, during and after the Split Share Reform. When the shares were not tradable, the ultimate controllers had no incentive to affect firm performance. The reform expanded the value of the

state-owned firms. During and after the reform, the objectives of state ultimate controllers become differentiated, in that they care more about the social responsibility, such as employment, than the market-oriented performance.

Insert Table 2.13, 2.14, 2.15

2.5 Conclusion

The chapter starts by investigating the impacts of different types of ultimate controllers on the firm performance to connect the relationship between ownership and performance outcomes with structural characteristics of business groups. I develop a new classification to identify the ultimate controllers of the business groups to fill the gap in the literature, which either uses share type to represent the ownership which obscures the real owners of the shares (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010) or fails to distinguish the state-controlled listed firms by functions, objectives, nor the administrative levels (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). Using the new classification, I categorise the ultimate controller of listed firms in China into 21 types and employ firm and year as fixed effects regression to estimate the relationship between ultimate controllers and firm performance.

The results in the chapter show the Central SASAC and Municipal Controllers as the ultimate controllers of the listed firms have a negative effect on profitability. Compared with the widely held companies, the firms controlled by Central SASAC or Municipal Controllers have lower profitability; however, when the Central Asset Bureaus obtain the control rights, they can improve firm profitability, labour productivity, operating efficiency and firm output. The finding is inconsistent with previous studies, which present negative relations between state ownership and firm performance (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al.,

2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021). Most state controllers can increase firm employment when they control the listed firms since they follow the instruction of the government to fulfil social responsibilities. With the support from the government, the listed firms controlled by Central SASAC or Central Asset Bureau have higher firm output than others. The state controllers at the Central level are superior to the Municipal controllers in increasing firms' profitability and operating efficiency. Moreover, SASACs perform better than other state controllers, having fewer negative impacts than other governmental agencies at the same administrative level in labour productivity, investment and firm output. Private and Foreign individuals have positive effects on firm profitability and operating efficiency. The findings imply that it is necessary to separate different types of ownerships when estimating their effects on firm performance.

When implementing reforming strategies, I suggest policymakers give great attention to the privatisation of state-owned enterprises. After privatisation, the SOEs would suffer a decrease in firm employment, output, and investment. Also, not all state controllers harm firm performance. Several types of state controllers are beneficial to employment, investment or operating efficiency, such as Central SASAC, Central Asset Bureau, Provincial SASAC and Provincial Department. Providing sufficient financial and political support for local and small SOEs could be an efficient way to improve their performance.

Tables of Chapter Two

Table 2.1 Original Data Set

This table presents the interpretation of original data set from CSMAR. The first column presents the names of data in the original data set. The second column explain the names of data.

<i>stock code</i>	Each listed firm has a unique code
<i>short name</i>	Initials of firms' name
<i>ending data</i>	Data date
<i>largest shareholder</i>	The shareholder with largest proportion of total shares
<i>shareholder ratio of the largest shareholder</i>	The proportion of shares held by largest shareholder
<i>shareholder ratio of top 10 shareholders</i>	The total proportion of shares held by the top 10 shareholders
<i>name of the actual shareholder</i>	The name of the shareholder who actually controls the firm
<i>nature code of the actual controller</i>	There are 15 codes classifying the actual controllers into 4 categories: enterprises, institutions and organisations, nature of person and other.
<i>code of equity nature</i>	There are 4 codes classifying the firms into 4 categories: 1 for state-owned enterprise, 2 for private enterprise, 3 for foreign enterprise and 4 for other
<i>hierarchy</i>	State-owned enterprises are classified into municipal, provincial and central enterprises
<i>Founder</i>	The firm's founder
<i>Separation ratio of ownership and control</i>	Difference between the actual controller's control and ownership of the listed company

Table 2.2 Ownership Classification

This table shows the classification of ownership in the thesis and the definitions. The first column gives the names of each type of shareholders. The second column provides the definitions of the classification.

Ownership	Definition
State Type	The State category includes all the types of state controller. The enterprises owned by state controller are State-Owned Enterprises.
Public Institution	Public Institution refers to the social service organisation established by the government operate education, science and technology, culture, health, media and other activities. Public Institution is the legal person entity as the form of organisation or institution. For example, China Agricultural University and Television Station are classified into this category.
Provincial Government	Provincial Government is the government at provincial level. It also includes municipal government directly under central government. For example, government of Zhejiang Province is classified into this category.
Municipal Government	Municipal Government is the government at municipal level. For example, government of Hangzhou is classified into this category.
Central Department	Central Department is the governmental department affiliated to central government, such as ministry, bureaus, commission, office et al. For example, Ministry of Finance is classified into this category.
Provincial Department	Provincial Department is the governmental department affiliated to provincial government, such as ministry, bureaus, commission, office et al. For example, Ministry of Finance of Zhejiang Province is classified into this category.
Municipal Department	Municipal Department is the governmental department affiliated to municipal government, such as ministry, bureaus, commission, office et al. For example, Ministry of Finance of Hangzhou is classified into this category.
Central Asset Bureaus	Central Asset Bureaus is the asset management and operation department affiliated to central government, such as asset bureaus, department, office et al., excepting SASAC. For example, Orient Asset Management Bureaus is classified into this category.
Provincial Asset Bureaus	Provincial Asset Bureaus is the asset management and operation department affiliated to provincial government, such as asset bureaus, department, office et al., excepting SASAC. For example, Beijing Economic-Technological Development Area State-owned Assets Management Office is classified into this category.
Municipal Asset Bureaus	Municipal Asset Bureaus is the asset management and operation department affiliated to municipal government, such as asset bureaus, department, office et al., excepting SASAC. For example, Anshan State-owned Assets Administration Bureau is classified into this category.
Central SASAC	Central SASAC is the State-owned Assets Supervision and Administration Commission.
Provincial SASAC	Provincial SASAC is the State-owned Assets Supervision and Administration Commission affiliated to provincial government. For example, Anhui State-owned Assets Supervision and Administration Commission is classified into this category.
Municipal SASAC	Municipal SASAC is the State-owned Assets Supervision and Administration Commission affiliated to municipal government. For example, Baotou Municipal People's Government State-owned Assets Supervision and Administration Commission is classified into this category.

(Continued on next page)

Central State-owned Enterprise	Central State-owned Enterprise refers to the controller is the SOE affiliated to central government. For example, Air China Limited is classified into this category.
Local State-owned Enterprise	Local State-owned Enterprise refers to the controller is the SOE affiliated to local (provincial/municipal) government. For example, Anhui Conch Group Co., Ltd. is classified into this category.
Foreign Type	The Foreign category includes foreign individual and foreign enterprise. The enterprises owned by foreign controller are Foreign Enterprises
Foreign Individual	Foreign Individual refers to the individuals who are not the citizens of China, including the individuals from Hong Kong, Macao and Taiwan
Foreign Enterprise	Foreign Enterprise is a common investment vehicle for mainland China-based business wherein foreign parties can incorporate a foreign-owned limited liability company. For example, American Airlines, Inc. is classified into this category.
Private Type	The Private category includes private individual and private enterprise. The enterprises owned by private controller are Private Enterprises.
Private Individual	Private Individual refers to the individuals who domestic citizens of China, excluding the individuals from Hong Kong, Macao and Taiwan
Private Enterprise	Private Enterprise refers to the business or company that is managed by independent companies or private individuals rather than being controlled by the state. For example, Beijing Haidian Technology Development Co., Ltd. is classified into this category.
Other Type	The Other category includes Operating Unit, Collectively-owned Enterprise and Social Organization
Operating Unit	Operating Unit is one type of economic organisation with their own name, address, fixed operation place, institutional framework, financial system, and employees. Operating Unit cannot have legal person status, control and dispose of the property or bear civil liability independently. For example, Aluminum Corporation of China is classified into this category
Collectively-owned Enterprise	Collectively-owned Enterprise refers to the independent commodity-economy organisation based on public ownership of the means of production which benefit all its members. For example, All China Federation of Supply and Marketing Cooperatives is classified into this category
Social Organisation	Social organisation is a pattern of relationships between and among individuals and social groups. For example Employee Joint Stock Fund of Yuxian Nanlou Group, Yangquan is classified into this category.

Table 2.3 Distribution of Firm Types

This table presents the distribution of firm types from 2003 to 2016. The first column gives the year. The second, third, fourth, fifth and sixth columns give the type of ultimate controllers, state, private, foreign, other and widely held. Under each ultimate controller the first column gives the percentage of firms in that category and the second column gives the number of firms in that category.

Year	State		Private		Foreign		Other		Wildely held		Total Number of Firms
	Weights in Total Firms (%)	Number of Firms	Weights in Total Firms (%)	Number of Firms	Weights in Total Firms (%)	Number of Firms	Weights in Total Firms (%)	Number of Firms	Weights in Total Firms (%)	Number of Firms	
2003	74.37	908	13.1	160	9.58	117	2.62	32	0.33	4	1221
2004	69.66	916	24.41	321	3.12	41	2.43	32	0.38	5	1315
2005	68.66	905	25.8	340	2.81	37	2.66	35	0.08	1	1318
2006	65.07	909	29.56	413	2.86	40	2.43	34	0.07	1	1397
2007	61.7	928	32.91	495	3.19	48	1.93	29	0.27	4	1504
2008	60.71	944	34.15	531	3.15	49	1.67	26	0.32	5	1555
2009	56.29	957	38.76	659	3.06	52	1.41	24	0.47	8	1700
2010	48.5	988	46.44	946	3.39	69	1.23	25	0.44	9	2039
2011	43.56	985	51.79	1171	3.23	73	1.11	25	0.31	7	2261
2012	41.74	993	52.75	1255	3.36	80	1.39	33	0.76	18	2379
2013	40.42	985	53.47	1303	3.41	83	1.35	33	1.35	33	2437
2014	40.29	986	53	1297	3.47	85	1.43	35	1.8	44	2447
2015	37.36	981	56.09	1473	3.2	84	1.1	29	2.25	59	2626
2016	34.79	1002	58.54	1686	3.13	90	1.28	37	2.26	65	2880

Table 2.4 Descriptive Statistics of Firm Performance Measures with Different Controller Types

This table reports the summary statistics of the firm performance measures across all types of controllers. Panel A presents the results for state controllers; Panel B for foreign controllers; Panel C for private controllers; Panel D for other controllers; Panel E for widely held firms. In every panel, the first column gives the type of ultimate controller, the second column gives the number of firm observations for that category, the rest of the columns give the average performance measures Operating Revenue, Employee, ROA, Tobin's Q, Operating Revenue per Employee, Capital Expenditure, ROS, and the average value of control variables Ownership.Director, Ownership.Supervisor, Ownership.Executive, Ownership.Management, SSR, Size, Leverage, Age and Crisis. Each cell under these columns reports the average value of the performance measure and control variables with standard deviation in parenthesis.

Controller Types	Max. Obs.	Operating Revenue	Employees	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS	Ownership.Director	Ownership.Supervisor	Ownership.Executive	Ownership.Management	SSR	Size	Leverage	Age	Crisis
Panel A: State																	
Public Institution	384	8.91 (0.53)	3.107 (0.489)	0.043 (0.056)	4.692 (3.457)	5.803 (0.361) ^y	7.763 (0.65)	0.07 (0.185)	0.008 (0.019)	0.001 (0.007)	0.008 (0.022)	0.012 (0.028)	0.539 (0.499)	9.244 (0.413)	0.043 (0.078)	14.191 (5.6)	0.24 (0.427)
Central Asset Bureau	3	8.807 (0.665)	2.673 (0.859)	0.047 (0.037)	4.583 (2.296)	6.134 (0.207)	7.877 (0.906)	0.056 (0.065)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	9.083 (0.469)	0.082 (0.072)	12 (2.646)	0.667 (0.577)
Central Department	316	9.119 (0.639)	3.31 (0.624)	0.03 (0.058)	4.767 (5.175)	5.792 (0.483)	7.822 (0.849)	0.035 (0.262)	0.003 (0.019)	0.003 (0.002)	0.002 (0.007)	0.004 (0.021)	0.782 (0.414)	9.473 (0.545)	0.07 (0.085)	16.051 (5.546)	0.282 (0.451)
Central SASAC	2877	9.478 (0.63)	3.501 (0.578)	0.031 (0.058)	4.211 (3.681)	5.997 (0.417)	8.163 (0.829)	0.042 (0.166)	0.003 (0.023)	0.0002 (0.002)	0.002 (0.014)	0.004 (0.025)	0.759 (0.427)	9.804 (0.731)	0.107 (0.146)	14.589 (5.353)	0.3 (0.458)
Central State-owned Enterprise	781	9.163 (0.657)	3.291 (0.562)	0.036 (0.062)	4.084 (3.836)	5.856 (0.476)	7.927 (0.84)	0.048 (0.2)	0.003 (0.018)	0.003 (0.001)	0.004 (0.02)	0.005 (0.022)	0.489 (0.022)	9.441 (0.646)	0.081 (0.173)	12.045 (5.14)	0.264 (0.441)
Local State-owned Enterprise	950	9.003 (0.571)	3.207 (0.557)	0.029 (0.062)	3.549 (2.982)	5.792 (0.551)	7.752 (0.854)	0.045 (0.2)	0.003 (0.017)	0.003 (0.002)	0.003 (0.017)	0.004 (0.022)	0.329 (0.47)	9.279 (0.46)	0.089 (0.113)	11.274 (4.621)	0.172 (0.377)
Provincial Asset Bureau	74	9.075 (0.452)	2.901 (0.703)	0.034 (0.068)	3.689 (5.492)	6.116 (0.585)	7.72 (0.862)	0.031 (0.352)	0.001 (0.007)	0.00002 (0.00005)	0.001 (0.008)	0.003 (0.015)	0.648 (0.481)	9.361 (0.431)	0.073 (0.084)	13.817 (5.338)	0.197 (0.401)
Provincial Department	294	8.891 (0.487)	3.1 (0.492)	0.031 (0.055)	3.997 (4.505)	5.791 (0.394)	7.898 (0.813)	0.105 (0.28)	0.0007 (0.011)	0.00001 (0.00004)	0.00008 (0.0003)	0.00008 (0.011)	0.711 (0.454)	9.389 (0.456)	0.106 (0.127)	12.551 (5.359)	0.269 (0.444)
Provincial Government	336	9.301 (0.62)	3.286 (0.699)	0.036 (0.058)	3.438 (3.218)	6 (0.555)	8.071 (0.943)	0.075 (0.232)	0.0001 (0.0003)	0.00002 (0.00006)	0.0001 (0.0003)	0.0002 (0.0005)	0.682 (0.467)	9.628 (0.569)	0.097 (0.131)	13.378 (5.945)	0.274 (0.447)
Provincial SASAC	3776	9.437 (0.619)	3.43 (0.604)	0.031 (0.056)	3.985 (4.257)	6.015 (0.498)	8.106 (0.902)	0.053 (0.189)	0.002 (0.017)	0.0002 (0.003)	0.001 (0.012)	0.002 (0.02)	0.809 (0.393)	9.697 (0.592)	0.107 (0.123)	15.834 (5.17)	0.301 (0.459)
Municipal Asset Bureau	339	8.975 (0.514)	3.286 (0.413)	0.019 (0.059)	3.672 (4.011)	5.691 (0.423)	7.831 (0.813)	0.026 (0.201)	0.007 (0.031)	0.0005 (0.002)	0.004 (0.022)	0.008 (0.035)	0.578 (0.495)	9.318 (0.446)	0.079 (0.11)	14.162 (5.333)	0.286 (0.453)
Municipal Department	389	8.913 (0.488)	3.181 (0.467)	0.028 (0.06)	4.472 (5.015)	5.745 (0.447)	7.86 (0.64)	0.064 (0.22)	0.002 (0.009)	0.0006 (0.004)	0.001 (0.005)	0.003 (0.015)	0.656 (0.476)	9.254 (0.423)	0.091 (0.11)	14.512 (5.032)	0.275 (0.447)
Municipal Government	428	9.076 (0.454)	3.316 (0.373)	0.029 (0.051)	3.674 (3.342)	5.759 (0.399)	7.95 (0.665)	0.063 (0.151)	0.004 (0.02)	0.0005 (0.003)	0.002 (0.016)	0.006 (0.025)	0.715 (0.452)	9.405 (0.397)	0.1 (0.117)	14.03 (5.459)	0.287 (0.453)
Municipal SASAC	2443	9.239 (0.559)	3.372 (0.51)	0.029 (0.056)	3.804 (4.066)	5.869 (0.42)	7.97 (0.784)	0.049 (0.187)	0.002 (0.015)	0.0002 (0.002)	0.002 (0.012)	0.003 (0.017)	0.818 (0.386)	9.512 (0.493)	0.083 (0.107)	15.837 (5.42)	0.308 (0.462)
Panel B: Foreign																	
Foreign Enterprise	373	9.037 (0.716)	3.25 (0.556)	0.031 (0.079)	4.131 (5.616)	5.764 (0.574)	7.767 (0.879)	-0.0008 (0.347)	0.01 (0.059)	0.0003 (0.002)	0.005 (0.032)	0.01 (0.061)	0.525 (0.5)	9.288 (0.526)	0.077 (0.118)	14.241 (5.436)	0.228 (0.42)
Foreign Individual	575	8.991 (0.516)	3.119 (0.514)	0.049 (0.057)	5.263 (5.0119)	5.9 (0.414)	7.755 (0.676)	0.096 (0.173)	0.089 (0.188)	0.0006 (0.005)	0.044 (0.135)	0.092 (0.192)	0.433 (0.496)	9.259 (0.57)	0.066 (0.102)	14.997 (5.889)	0.231 (0.422)

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Panel C: Private																	
Private Enterprise	139	9.086	3.165	0.037	4.051	5.865	7.689	0.047	0.009	0.0002	0.005	0.01	0.691	9.419	0.066	17.194	0.252
		(0.703)	(0.716)	(0.055)	(3.544)	(0.393)	(1.045)	(0.288)	(0.035)	(0.0008)	(0.02)	(0.036)	(0.464)	(0.724)	(0.083)	(5.242)	(0.436)
Private Individual	11911	8.952	3.098	0.05	5.184	5.851	7.767	0.077	0.19	0.006	0.108	0.202	0.372	9.248	0.053	14.101	0.218
		(0.555)	(0.496)	(0.06)	(4.836)	(0.407)	(0.761)	(0.196)	(0.22)	(0.019)	(0.169)	(0.231)	(0.483)	(0.49)	(0.134)	(5.613)	(0.413)
Panel D: Other																	
Operating Unit	39	9.045	3.129	0.035	5.598	5.917	7.862	0.066	0.021	0.0002	0.008	0.021	0.59	9.462	0.088	19.923	0
		(0.559)	(0.489)	(0.057)	(4.779)	(0.368)	(0.8)	(0.19)	(0.038)	(0.001)	(0.025)	(0.038)	(0.5)	(0.461)	(0.116)	(4.403)	0
Collectively-owned Enterprise	161	9.134	3.388	0.054	3.745	5.789	7.912	0.082	0.027	0.002	0.023	0.03	0.609	9.415	0.058	14.547	0.311
		(0.53)	(0.461)	(0.064)	(3.53)	(0.411)	(0.607)	(0.123)	(0.061)	(0.004)	(0.056)	(0.066)	(0.49)	(0.51)	(0.105)	(5.485)	(0.464)
Social Organization	229	9.127	3.353	0.032	3.052	5.774	7.945	0.054	0.002	0.0001	0.001	0.002	0.764	9.476	0.058	15.921	0.236
		(0.523)	(0.71)	(0.051)	(2.908)	(0.649)	(0.825)	(0.223)	(0.006)	(0.001)	(0.006)	(0.008)	(0.425)	(0.543)	(0.119)	(4.754)	(0.425)
Panel E: No Controller																	
Widely Held Firms	263	9.168	3.226	0.041	5.248	5.951	7.906	0.05	0.089	0.007	0.047	0.103	0.479	9.515	0.076	16.387	0.099
		(0.758)	(0.632)	(0.062)	(4.949)	(0.376)	(0.958)	(0.256)	(0.134)	(0.021)	(0.076)	(0.154)	(0.501)	(0.835)	(0.103)	(5.471)	(0.299)

Table 2.5 The ANOVA Results of the Significance of Firm Performance between Controller Groups

The table presents the comparison groups with significant differences in the firm performance. I first use ANOVA to determine if differences exist among the mean values of performance in firms with various controllers. Then I adopt the Tukey-Kramer method (post-hoc pairwise comparison) to investigate what differences exist among the groups. The results show which groups are significantly different from each other at 5% level regarding different performance measures. The first row of the table shows the types of firm performance. The comparison groups are shown under every performance. For example, the mean value of ROA of a listed firm controlled by the Central Department is significantly different from that of a listed firm controlled by Collectively owned Enterprise. The comparison groups in which no significant differences exist are not reported in the table.

ROA		Tobin Q		ROS	
Comparison Groups		Comparison Groups		Comparison Groups	
Central Department	vs	Collectively-owned Enterprise	Central SASAC	vs	Foreign Individual
Central Department	vs	Foreign Individual	Central SASAC	vs	Local State-owned Enterprise
Central Department	vs	Private Individual	Central SASAC	vs	Private Individual
Central SASAC	vs	Collectively-owned Enterprise	Central State-owned Enterprise	vs	Foreign Individual
Central SASAC	vs	Foreign Individual	Central State-owned Enterprise	vs	Private Individual
Central SASAC	vs	Private Individual	Collectively-owned Enterprise	vs	Foreign Individual
Central SASAC	vs	Public Institution	Collectively-owned Enterprise	vs	Private Individual
Central State-owned Enterprise	vs	Collectively-owned Enterprise	Foreign Enterprise	vs	Foreign Individual
Central State-owned Enterprise	vs	Foreign Individual	Foreign Enterprise	vs	Private Individual
Central State-owned Enterprise	vs	Municipal Asset Bureau	Foreign Individual	vs	Local State-owned Enterprise
Central State-owned Enterprise	vs	Private Individual	Foreign Individual	vs	Municipal Asset Bureau
Collectively-owned Enterprise	vs	Foreign Enterprise	Foreign Individual	vs	Municipal Government
Collectively-owned Enterprise	vs	Local State-owned Enterprise	Foreign Individual	vs	Municipal SASAC
Collectively-owned Enterprise	vs	Municipal Asset Bureau	Foreign Individual	vs	Provincial Department
Collectively-owned Enterprise	vs	Municipal Department	Foreign Individual	vs	Provincial Government
Collectively-owned Enterprise	vs	Municipal Government	Foreign Individual	vs	Provincial SASAC
Collectively-owned Enterprise	vs	Municipal SASAC	Foreign Individual	vs	Social Organisation
Collectively-owned Enterprise	vs	Provincial Department	Local State-owned Enterprise	vs	Private Individual
Collectively-owned Enterprise	vs	Provincial SASAC	Local State-owned Enterprise	vs	Public Institution
Collectively-owned Enterprise	vs	Social Organisation	Municipal Asset Bureau	vs	Private Individual
Foreign Enterprise	vs	Foreign Individual	Municipal Government	vs	Private Individual
Foreign Enterprise	vs	Private Individual	Municipal SASAC	vs	Private Individual
Foreign Individual	vs	Local State-owned Enterprise	Municipal SASAC	vs	Public Institution
Foreign Individual	vs	Municipal Asset Bureau	Private Individual	vs	Provincial Department
Foreign Individual	vs	Foreign Individual	Private Individual	vs	Provincial Government
Foreign Individual	vs	Municipal Government	Private Individual	vs	Provincial SASAC
Foreign Individual	vs	Municipal SASAC	Private Individual	vs	Local State-owned Enterprise
Foreign Individual	vs	Provincial Department	Provincial Government	vs	Provincial Department
Foreign Individual	vs	Provincial SASAC	Public Institution	vs	Private Individual
Local State-owned Enterprise	vs	Private Individual	Social Organisation	vs	Provincial Department
Local State-owned Enterprise	vs	Public Institution	Social Organisation	vs	Private Individual
Municipal Asset Bureau	vs	Private Individual	Without	vs	Provincial SASAC
Municipal Asset Bureau	vs	Provincial Government		vs	Provincial SASAC
Municipal Asset Bureau	vs	Provincial SASAC		vs	Provincial SASAC
Municipal Asset Bureau	vs	Public Institution		vs	Provincial SASAC
Municipal Asset Bureau	vs	Without		vs	Provincial SASAC
Municipal Department	vs	Private Individual		vs	Provincial SASAC
Municipal Government	vs	Private Individual		vs	Provincial SASAC
Municipal SASAC	vs	Private Individual		vs	Provincial SASAC
Municipal SASAC	vs	Public Institution		vs	Provincial SASAC
Private Individual	vs	Provincial Department		vs	Provincial SASAC
Private Individual	vs	Provincial Government		vs	Provincial SASAC
Private Individual	vs	Provincial SASAC		vs	Provincial SASAC
Private Individual	vs	Social Organisation		vs	Provincial SASAC
Private Individual	vs	Without		vs	Provincial SASAC

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Operating Revenue		Employees		Operating Revenue per Employee				
Comparison Groups		Comparison Groups		Comparison Groups				
Municipal Department	vs	Without	Municipal Asset Bureau	vs	Private Individual	Municipal Department	vs	Provincial Government
Municipal Government	vs	Municipal SASAC	Municipal Asset Bureau	vs	Provincial Asset Bureau	Municipal Department	vs	Provincial SASAC
Municipal Government	vs	Private Individual	Municipal Asset Bureau	vs	Provincial SASAC	Municipal Department	vs	Without
Municipal Government	vs	Provincial Department	Municipal Asset Bureau	vs	Public Institution	Municipal Government	vs	Municipal SASAC
Municipal Government	vs	Provincial Government	Municipal Department	vs	Municipal SASAC	Municipal Government	vs	Private Individual
Municipal Government	vs	Provincial SASAC	Municipal Department	vs	Provincial Asset Bureau	Municipal Government	vs	Provincial Asset Bureau
Municipal Government	vs	Public Institution	Municipal Department	vs	Provincial SASAC	Municipal Government	vs	Provincial Government
Municipal SASAC	vs	Private Individual	Municipal Department	vs	Without	Municipal Government	vs	Provincial SASAC
Municipal SASAC	vs	Provincial Department	Municipal Government	vs	Private Individual	Municipal Government	vs	Without
Municipal SASAC	vs	Provincial SASAC	Municipal Government	vs	Provincial Asset Bureau	Municipal SASAC	vs	Provincial Asset Bureau
Municipal SASAC	vs	Public Institution	Municipal Government	vs	Provincial Department	Municipal SASAC	vs	Provincial Government
Operating Unit	vs	Provincial SASAC	Municipal Government	vs	Provincial SASAC	Municipal SASAC	vs	Provincial SASAC
Private Enterprise	vs	Provincial Government	Municipal Government	vs	Public Institution	Private Enterprise	vs	Provincial Asset Bureau
Private Enterprise	vs	Provincial SASAC	Municipal SASAC	vs	Private Enterprise	Private Enterprise	vs	Provincial SASAC
Private Individual	vs	Provincial Government	Municipal SASAC	vs	Private Individual	Private Individual	vs	Provincial Asset Bureau
Private Individual	vs	Provincial SASAC	Municipal SASAC	vs	Provincial Asset Bureau	Private Individual	vs	Provincial Government
Private Individual	vs	Social Organisation	Municipal SASAC	vs	Provincial Department	Private Individual	vs	Provincial SASAC
Private Individual	vs	Without	Municipal SASAC	vs	Provincial SASAC	Private Individual	vs	Provincial SASAC
Provincial Asset Bureau	vs	Provincial SASAC	Municipal SASAC	vs	Public Institution	Provincial Asset Bureau	vs	Provincial Department
Provincial Department	vs	Provincial Government	Municipal SASAC	vs	Provincial SASAC	Provincial Asset Bureau	vs	Public Institution
Provincial Department	vs	Provincial SASAC	Private Enterprise	vs	Provincial SASAC	Provincial Asset Bureau	vs	Social Organisation
Provincial Department	vs	Social Organisation	Private Enterprise	vs	Without	Provincial Department	vs	Provincial Government
Provincial Department	vs	Without	Private Individual	vs	Provincial Government	Provincial Department	vs	Provincial SASAC
Provincial Government	vs	Provincial SASAC	Private Individual	vs	Provincial SASAC	Provincial Department	vs	Without
Provincial Government	vs	Public Institution	Private Individual	vs	Social Organisation	Provincial Department	vs	Without
Provincial Government	vs	Social Organisation	Private Individual	vs	Social Organisation	Provincial Government	vs	Public Institution
Provincial SASAC	vs	Public Institution	Private Individual	vs	Without	Provincial Government	vs	Social Organisation
Provincial SASAC	vs	Social Organisation	Provincial Asset Bureau	vs	Provincial Government	Provincial Government	vs	Social Organisation
Provincial SASAC	vs	Without	Provincial Asset Bureau	vs	Provincial SASAC	Provincial SASAC	vs	Public Institution
Public Institution	vs	Social Organisation	Provincial Asset Bureau	vs	Social Organisation	Provincial SASAC	vs	Public Institution
Public Institution	vs	Without	Provincial Asset Bureau	vs	Without	Public Institution	vs	Without
			Provincial Asset Bureau	vs	Without	Social Organisation	vs	Without
			Provincial Department	vs	Provincial Government			
			Provincial Department	vs	Provincial SASAC			
			Provincial Department	vs	Social Organisation			
			Provincial Department	vs	Without			
			Provincial Government	vs	Provincial SASAC			
			Provincial Government	vs	Public Institution			
			Provincial SASAC	vs	Public Institution			
			Public Institution	vs	Social Organisation			
			Public Institution	vs	Without			

Table 2.6 The Times and Frequency of Ownership Transfer

This table presents the times of ownership transfer from one type of ultimate controller to another and the frequency of ultimate ownership transfers (i.e. how often the ultimate controller changes). Panel A shows the times of ownership transfers and the number of listed firms with particular times of ownership transfer in the sample. Panel A also shows the average times of ownership transfer of all firms, with standard deviation in parenthesis. Panel B shows the frequency of ownership transfer, namely how often a listed firm undergoes ownership transfer (Unit: Year), as well as the number of listed firms with a particular frequency of ownership transfer in the sample. Panel B also shows the average frequency of ownership transfer of all firms with standard deviation in parenthesis.

Panel A				
The Number of Firms	The Times of Ownership Transfer			
1872	0			
648	1			
312	2			
162	3			
60	4			
17	5			
6	6			
Total Number of Firms	The Average Times of Ownership Transfer	Min. Times	Max. Times	
3077	0.689 (1.066)	0	6	
Panel B				
The Number of Firms	The Frequency of Ownership Transfer (How often the Ownership Changes; Unit:Year)			
1	1.2			
1	1.33			
2	1.5			
9	2			
1	2.25			
6	2.33			
7	2.5			
2	2.6			
1	2.67			
1	2.75			
14	2.8			
12	3			
8	3.25			
3	3.33			
48	3.5			
2	3.67			
11	4			
8	4.33			
7	4.5			
144	4.67			
16	5			
8	5.5			
20	6			
20	6.5			
267	7			
20	8			
9	9			
22	10			
26	11			
15	12			
22	13			
247	14			
Total Number of Firms	The Average Frequency of Ownership Transfer (How often the Ownership Changes; Unit:Year)	Min. Frequency	Max. Frequency	
1205 (1872 firms has no ownership transfer)	9.295 (4.239)	1.2	14	

Table 2.7 Correlation Matrix of Main Variables

This table reports the correlations between the main variables, including the ownership variables, performance variables and control variables.

* Indicates statistical significance at the 10% level.

** Indicates statistical significance at the 5% level.

*** Indicates statistical significance at the 1% level.

Variables	Dummy.State	Dummy.Private	Dummy.Foreign	Dummy.Other	Dummy.Public Institution	Dummy.Central AssetBureau	Dummy.Central Department	Dummy.Central SASAC	Dummy.Central SOE	Dummy.Local SOE	Dummy.Provincia lAssetBureau	Dummy.Provincia lDepartment	Dummy.Provincia lGovernment	Dummy.Provincia lSASAC
Dummy.State	1													
Dummy.Private	-0.886***	1												
Dummy.Foreign	-0.188***	-0.171***	1											
Dummy.Other	-0.125***	-0.114***	-0.024***	1										
Dummy.PublicInstitution	0.121***	-0.107***	-0.023***	-0.015**	1									
Dummy.CentralAssetBureau	0.011*	-0.009	-0.002	-0.001	-0.001	1								
Dummy.CentralDepartment	0.110***	-0.097***	-0.021***	-0.014**	-0.013**	-0.001	1							
Dummy.CentralSASAC	0.349***	-0.309***	-0.066***	-0.044***	-0.041***	-0.004	-0.037***	1						
Dummy.CentralSOE	0.174***	-0.154***	-0.033***	-0.022***	-0.021***	-0.002	-0.019***	-0.059***	1					
Dummy.LocalSOE	0.193***	-0.171***	-0.036***	-0.024***	-0.023***	-0.002	-0.021***	-0.066***	-0.033***	1				
Dummy.Provincia lAssetBureau	0.052***	-0.046***	-0.010*	-0.007	-0.006	-0.001	-0.006	-0.018***	-0.009	-0.010*	1			
Dummy.Provincia lDepartment	0.106***	-0.094***	-0.020***	-0.013**	-0.013**	-0.001	-0.011*	-0.036***	-0.018***	-0.020***	-0.005	1		
Dummy.Provincia lGovernment	0.113***	-0.100***	-0.021***	-0.014**	-0.013**	-0.001	-0.012**	-0.039***	-0.019***	-0.021***	-0.006	-0.012*	1	
Dummy.Provincia lSASAC	0.407***	-0.360***	-0.077***	-0.051***	-0.048***	-0.004	-0.044***	-0.139***	-0.069***	-0.077***	-0.021***	-0.042***	-0.045***	1
Dummy.MunicipalAssetBureau	0.114***	-0.101***	-0.021***	-0.014**	-0.014**	-0.001	-0.012**	-0.039***	-0.019***	-0.021***	-0.006	-0.012*	-0.013**	-0.045***
Dummy.MunicipalDepartment	0.122***	-0.108***	-0.023***	-0.015**	-0.014**	-0.001	-0.013**	-0.042***	-0.021***	-0.023***	-0.006	-0.013**	-0.014**	-0.049***
Dummy.MunicipalGovernment	0.128***	-0.113***	-0.024***	-0.016***	-0.015**	-0.001	-0.014**	-0.044***	-0.022***	-0.024***	-0.006	-0.013**	-0.014**	-0.051***
Dummy.MunicipalSASAC	0.318***	-0.282***	-0.060***	-0.040***	-0.038***	-0.003	-0.034***	-0.109***	-0.054***	-0.060***	-0.016***	-0.033***	-0.035***	-0.127***
Dummy.ForeignEnterprise	-0.117***	-0.106***	0.620***	-0.015**	-0.014**	-0.001	-0.013**	-0.041***	-0.020***	-0.023***	-0.006	-0.012**	-0.013**	-0.048***
Dummy.ForeignIndividual	-0.146***	-0.132***	0.773***	-0.019***	-0.018***	-0.002	-0.016***	-0.051***	-0.025***	-0.028***	-0.008	-0.015**	-0.017**	-0.059***
Dummy.PrivateEnterprise	-0.071***	0.080***	-0.014**	-0.009	-0.009	-0.001	-0.008	-0.025***	-0.012**	-0.014**	-0.004	-0.008	-0.008	-0.029***
Dummy.PrivateIndividual	-0.876***	0.990***	-0.169***	-0.112***	-0.106***	-0.009	-0.096***	-0.306***	-0.153***	-0.169***	-0.045***	-0.093***	-0.099***	-0.357***
Dummy.OperatingUnit	-0.038***	-0.034***	-0.007	0.299***	-0.005	0	-0.004	-0.013**	-0.007	-0.007	-0.002	-0.004	-0.004	-0.015**
Dummy.CollectivelyownedEnterprise	-0.076***	-0.069***	-0.015**	0.610***	-0.009	-0.001	-0.008	-0.027***	-0.013**	-0.015**	-0.004	-0.008	-0.009	-0.031***
Dummy.SocialOrganisation	-0.091***	-0.083***	-0.018***	0.728***	-0.011*	-0.001	-0.010*	-0.032***	-0.016***	-0.018***	-0.005	-0.01	-0.010*	-0.037***
Dummy.WidelyheldFirm	-0.098***	-0.089***	-0.019***	-0.013**	-0.012*	-0.001	-0.011*	-0.034***	-0.017***	-0.019***	-0.005	-0.010*	-0.011*	-0.040***
Operating Revenue	0.256***	-0.246***	-0.035***	0	-0.042***	-0.005	-0.001	0.195***	0.011*	-0.037***	-0.004	-0.040***	0.033***	0.206***
Employees	0.230***	-0.228***	-0.023***	0.024***	-0.029***	-0.011*	0.014**	0.160***	0.015**	-0.011*	-0.032***	-0.027***	0.009	0.138***
ROA	-0.149***	0.147***	0.007	0.001	0.006	0.001	-0.018***	-0.052***	-0.012*	-0.034***	-0.005	-0.016***	-0.007	-0.058***
Tobin's Q	-0.123***	0.124***	0.011*	-0.029***	0.004	0	0.005	-0.026***	-0.018***	-0.043***	-0.01	-0.013**	-0.028***	-0.051***
Operating Revenue per Employee	0.075***	-0.066***	-0.017**	-0.026***	-0.023***	0.006	-0.023***	0.086***	-0.011*	-0.039***	0.026***	-0.022**	0.029***	0.118***
Capital Expenditure	0.159***	-0.149***	-0.035***	-0.008	-0.028***	-0.002	-0.002	0.135***	0.005	-0.016***	-0.006	-0.005	0.034***	0.133***
ROI	-0.061***	0.049***	0.033***	0	-0.006	0.002	0.005	-0.011*	-0.017***	-0.012*	0	-0.011	-0.014**	-0.033***
ROS	-0.061***	0.063***	-0.004	0.002	0.005	0	-0.015**	-0.037***	-0.012**	-0.017***	-0.008	0.022***	0.007	-0.020***
Ownership.Director	-0.478***	0.507***	-0.035***	-0.056***	-0.056***	-0.004	-0.054***	-0.166***	-0.084***	-0.093***	-0.026***	-0.053***	-0.055***	-0.197***
Ownership.Supervisor	-0.192***	0.205***	-0.034***	-0.021***	-0.019***	-0.002	-0.021***	-0.068***	-0.034***	-0.037***	-0.011*	-0.023***	-0.023***	-0.081***
Ownership.Executive	-0.376***	0.400***	-0.033***	-0.041***	-0.041***	-0.004	-0.043***	-0.130***	-0.064***	-0.072***	-0.020***	-0.042***	-0.044***	-0.156***
Ownership.Management	-0.480***	0.509***	-0.037***	-0.056***	-0.054***	-0.004	-0.054***	-0.166***	-0.084***	-0.093***	-0.025***	-0.054***	-0.056***	-0.198***
SSR	0.327***	-0.322***	-0.033***	0.034***	-0.004	0.009	0.050***	0.142***	-0.023***	-0.087***	0.01	0.033***	0.029***	0.206***
Size	0.272***	-0.261***	-0.049***	0.007	-0.040***	-0.006	0.010*	0.227***	0.006	-0.046***	-0.005	-0.006	0.040***	0.191***
Leverage	0.156***	-0.151***	-0.007	-0.015**	-0.030***	0.001	-0.004	0.085***	0.007	0.021***	-0.001	0.026***	0.019***	0.099***
Age	0.038***	-0.056***	0.007	0.029***	-0.006	-0.005	0.031***	0.007	-0.0276***	-0.110***	-0.006	-0.036***	-0.022**	0.098***
Crisis	0.078***	-0.067***	-0.009	-0.003	-0.003	0.010*	0.008	0.039***	0.005	-0.035***	-0.006	0.004	0.006	0.047***

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Variables	Dummy.Municipal AssetBureau	Dummy.Municipal Department	Dummy.Municipal Government	Dummy.MunicipalS ASAC	Dummy.Foreign Enterprise	Dummy.Foreign Individual	Dummy.Private Enterprise	Dummy.Private Individual	Dummy.Operating Unit	Dummy.Collectively ownedEnterprise	Dummy.Social Organisation
Dummy.MunicipalAssetBureau	1										
Dummy.MunicipalDepartment	-0.014**	1									
Dummy.MunicipalGovernment	-0.014**	-0.015**	1								
Dummy.MunicipalSASAC	-0.035***	-0.038***	-0.040***	1							
Dummy.ForeignEnterprise	-0.013**	-0.014**	-0.015**	-0.037***	1						
Dummy.ForeignIndividual	-0.017***	-0.018***	-0.019***	-0.046***	-0.017***	1					
Dummy.PrivateEnterprise	-0.008	-0.009	-0.009	-0.023***	-0.008	-0.011*	1				
Dummy.PrivateIndividual	-0.100***	-0.107***	-0.112***	-0.279***	-0.105***	-0.131***	-0.064***	1			
Dummy.OperatingUnit	-0.004	-0.005	-0.005	-0.012**	-0.004	-0.006	-0.003	-0.034***	1		
Dummy.CollectivelyownedEnterprise	-0.009	-0.009	-0.010*	-0.024***	-0.009	-0.011*	-0.006	-0.069***	-0.003	1	
Dummy.SocialOrganisation	-0.010*	-0.011*	-0.012*	-0.029***	-0.011*	-0.014**	-0.007	-0.082***	-0.004	-0.007	1
Dummy.WidelyheldFirm	-0.011*	-0.012**	-0.013**	-0.031***	-0.012*	-0.015**	-0.007	-0.088***	-0.004	-0.008	-0.009
Operating Revenue	-0.027***	-0.041***	-0.01	0.060***	-0.016***	-0.031***	-0.004	-0.245***	-0.005	0.001	0.001
Employees	0.009	-0.013**	0.017***	0.075***	0.002	-0.032***	-0.009	-0.227***	-0.008	0.021***	0.019***
ROA	-0.040***	-0.024***	-0.024***	-0.055***	-0.018***	0.023***	-0.003	0.147***	-0.003	0.018***	-0.012*
Tobin's Q	-0.022***	-0.002	-0.025***	-0.053***	-0.011*	0.023***	-0.008	0.125***	0.009	-0.014**	-0.031***
Operating Revenue per Employee	-0.049***	-0.038***	-0.036***	-0.010*	-0.032***	0.004	-0.003	-0.066***	0.003	-0.017***	-0.023***
Capital Expenditure	-0.003	-0.025***	-0.015**	0.001	-0.013**	-0.034***	0.003	-0.150***	-0.006	-0.012**	0.002
ROI	-0.015**	-0.015**	-0.009	-0.006	0.013*	0.033***	-0.001	0.050***	0.005	0.007	-0.007
ROS	-0.021***	0.001	0	-0.021***	-0.037***	0.025***	-0.006	0.064***	0.001	0.007	-0.004
Ownership.Director	-0.053***	-0.060***	-0.060***	-0.154***	-0.054***	0	-0.033***	0.512***	-0.015**	-0.028***	-0.047***
Ownership.Supervisor	-0.020***	-0.020***	-0.023***	-0.062***	-0.023***	-0.024***	-0.015**	0.208***	-0.007	-0.008	-0.019***
Ownership.Executive	-0.042***	-0.048***	-0.048***	-0.121***	-0.043***	-0.007	-0.027***	0.405***	-0.013**	-0.017***	-0.037***
Ownership.Management	-0.053***	-0.060***	-0.060***	-0.155***	-0.054***	-0.003	-0.033***	0.515***	-0.015**	-0.027***	-0.047***
SSR	0.005	0.024***	0.041***	0.167***	-0.007	-0.036***	0.020***	-0.326***	0.003	0.008	0.039***
Size	-0.020***	-0.034***	-0.003	0.050***	-0.027***	-0.041***	0	-0.261***	0.003	-0.001	0.009
Leverage	0.003	0.015**	0.025***	0.019***	0.001	-0.010*	-0.005	-0.151***	0.004	-0.010*	-0.013**
Age	-0.006	0.001	-0.010*	0.077***	-0.005	0.014**	0.035***	-0.061***	0.037***	0.001	0.024***
Crisis	0.009	0.007	0.011*	0.041***	-0.006	-0.007	0	-0.068***	-0.022***	0.011*	-0.003

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Variables	Dummy.WidelyheldFirm	Operating Revenue	Employees	ROA	Tobin's Q	Operating Revenue per Employee	CapitalExpenditure	ROI	ROS	Ownership.Director	Ownership.Supervisor	Ownership.Executive	Ownership.Management	SSR	Size	Leverage	Age	Crisis
Dummy.WidelyheldFirm	1																	
Operating Revenue	0.007	1																
Employees	-0.003	0.705***	1															
ROA	0.002	0.103***	0.032***	1														
Tobin's Q	0.015**	-0.123***	-0.111***	0.021***	1													
Operating Revenue per Employee	0.015**	0.501***	-0.261***	0.110***	-0.031***	1												
Capital Expenditure	0.020***	0.477***	0.414***	0.041***	-0.079***	0.142***	1											
ROI	0.005	-0.011*	-0.024***	0.047***	0.030***	0.011	-0.025***	1										
ROS	-0.006	0.109***	-0.006	0.691***	-0.001	0.160***	0.060***	0.036***	1									
Ownership.Director	0	-0.188***	-0.164***	0.231***	0.089***	-0.058***	-0.104***	0.028***	0.153***	1								
Ownership.Supervisor	0.027***	-0.092***	-0.069***	0.122***	0.021***	-0.048***	-0.041***	0.012*	0.083***	0.331***	1							
Ownership.Executive	-0.003	-0.169***	-0.139***	0.205***	0.085***	-0.061***	-0.085***	0.022***	0.135***	0.799***	0.253***	1						
Ownership.Management	0.005	-0.191***	-0.164***	0.236***	0.089***	-0.062***	-0.105***	0.029***	0.156***	0.995***	0.399***	0.800***	1					
SSR	-0.015**	0.192***	0.121***	-0.172***	-0.010*	0.123***	0.063***	0.005	-0.114***	-0.479***	-0.212***	-0.390***	-0.487***	1				
Size	0.016***	0.860***	0.636***	0.035***	-0.123***	0.410***	0.565***	-0.017**	0.135***	-0.192***	-0.097***	-0.170***	-0.195***	0.173***	1			
Leverage	0	0.134***	0.049***	-0.164***	-0.029***	0.130***	0.212***	-0.019***	-0.051***	-0.180***	-0.079***	-0.149***	-0.183***	0.172***	0.276***	1		
Age	0.034***	0.153***	0.036***	-0.115***	0.105***	0.174***	0.022***	0.046***	-0.074***	-0.180***	-0.113***	-0.148***	-0.185***	0.386***	0.171***	0.110***	1	
Crisis	-0.035***	-0.030***	-0.026***	0.051***	0.079***	-0.009	0.002	0.002	0.007	-0.081***	-0.002	-0.061***	-0.081***	0.220***	-0.086***	0.030***	-0.144***	1

Table 2.8 Hausman Test for the Effect of Ultimate Controllers on Firm Performance

This table shows the value of Prob > chi2 of Hausman Test for the effect of ultimate controllers on firm performance. I run the regression a.1 by using fixed effect and random effect and use Hausman Test to generate the value of Prob > chi2. Column 2 shows the results for the performance measure, Operating Revenue; Column 3 shows the results for the performance measure, Employment; Column 4 shows the results for the performance measure, ROA; Column 5 shows the results for the performance measure, Tobin's Q; Column 6 shows the results for the performance measure, Operating Revenue per Employee; Column 7 shows the results for the performance measure, Capital Expenditure; Column 8 shows the results for the performance measure, ROS.

Performance Variables	Operating Revenue	Employees	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Prob>chi2	0	0	0	0	0	0	0

Table 2.9 Regression Results of the Effects of Four Major Ultimate Controllers on Firm Performance

This table employs equation 2.a (See the detailed interpretation of variables in the methodology, section 2.3) and presents the regression results of the effects of the four major ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of Dummy.State, Dummy.Foreign, Dummy.Private and Dummy.Other respectively with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.State</i>	0.0158 (0.024)	0.0713** (0.0317)	-0.0071 (0.00663)	-0.65 (0.517)	-0.0476 (0.0333)	0.0706 (0.0663)	0.00139 (0.0256)
<i>Dummy.Foreign</i>	0.0196 (0.029)	0.0593 (0.0365)	0.00663 (0.00746)	-0.252 (0.669)	-0.0311 (0.0388)	0.258*** (0.0704)	0.0428 (0.0286)
<i>Dummy.Private</i>	0.0127 (0.0227)	0.000541 (0.03)	0.0102 (0.00637)	-0.0666 (0.513)	0.0306 (0.0317)	0.129** (0.0618)	0.0572** (0.0242)
<i>Dummy.Other</i>	-0.0492 (0.0412)	-0.0645 (0.0606)	0.0163* (0.00841)	0.163 (0.591)	0.0305 (0.0526)	0.11 (0.086)	0.0581* (0.032)
Control Variables							
<i>Ownership.Director</i>	0.209 (0.176)	0.0332 (0.187)	-0.103*** (0.0393)	-4.513 (4.5)	0.0168 (0.19)	0.276 (0.363)	-0.291*** (0.0973)
<i>Ownership.Supervisor</i>	0.0948 (0.342)	-0.479 (0.348)	-0.0116 (0.0854)	-13.09** (5.383)	0.183 (0.352)	0.780* (0.472)	-0.028 (0.159)
<i>Ownership.Executive</i>	-0.00149 (0.0335)	-0.0604* (0.0349)	0.0579*** (0.0105)	-2.268*** (0.84)	0.0511 (0.0415)	0.0562 (0.0811)	0.118*** (0.033)
<i>Ownership.Management</i>	-0.172 (0.173)	-0.0255 (0.189)	0.169*** (0.0388)	2.276 (4.362)	0.022 (0.191)	0.351 (0.346)	0.479*** (0.0901)
<i>SSR</i>	0.0712*** (0.00603)	0.00506 (0.00727)	-0.00015 (0.00165)	-1.343*** (0.104)	0.0660*** (0.00847)	0.00818 (0.0155)	-0.00593 (0.0057)
<i>Size</i>	0.862*** (0.0176)	0.588*** (0.0209)	0.0106*** (0.00286)	-0.540** (0.273)	0.279*** (0.0233)	1.083*** (0.0298)	0.112*** (0.0115)
<i>Leverage</i>	-0.228** (0.101)	-0.121** (0.0584)	-0.0626*** (0.00873)	0.756 (0.741)	-0.0974* (0.0572)	0.103 (0.0994)	-0.137*** (0.0453)
<i>Age</i>	0.000926 (0.0012)	-0.00893*** (0.00161)	-0.00106*** (0.00026)	0.346*** (0.0224)	0.00926*** (0.00165)	-0.0331*** (0.00245)	-0.00720*** (0.000966)
<i>Crisis</i>	0.0127*** (0.00325)	-0.0178*** (0.00442)	0.0122*** (0.000961)	2.000*** (0.0772)	0.0304*** (0.00488)	-0.0143 (0.00898)	0.0198*** (0.00323)
Constant	0.949*** (0.153)	-2.192*** (0.185)	-0.0545** (0.0252)	5.487** (2.384)	3.089*** (0.207)	-1.992*** (0.269)	-0.939*** (0.1)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.72	0.367	0.048	0.083	0.207	0.286	0.039

Table 2.10 Regression Results of the Effects of Twenty-one Types of Ultimate Controllers on Firm Performance

This table employs the equation 2.b (See the detailed interpretation of variables in the methodology, section 2.3) to test hypothesis 1a, 1b, 1c, 1d and presents the regression results about the effect of 21 types of ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of 21 dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.PublicInstitution</i>	-0.0823*** (0.0296)	5.45E-06 (0.0482)	-0.00951 (0.00907)	-0.684 (0.71)	-0.07 (0.0518)	0.0662 (0.0825)	-0.0194 (0.0352)
<i>Dummy.CentralAssetBureau</i>	0.0686** (0.0273)	-0.153 (0.127)	0.0298*** (0.00813)	-1.591 (3.397)	0.236* (0.124)	-0.159 (0.321)	0.0995* (0.0536)
<i>Dummy.CentralDepartment</i>	-0.017 (0.0386)	0.0923* (0.0521)	-0.000214 (0.00899)	0.102 (0.853)	-0.101* (0.0535)	0.108 (0.085)	-0.0113 (0.0539)
<i>Dummy.CentralSASAC</i>	0.0626** (0.0273)	0.102*** (0.0364)	-0.00991 (0.00737)	-0.947* (0.55)	-0.0289 (0.0374)	0.037 (0.072)	-0.0202 (0.0291)
<i>Dummy.CentralSOE</i>	0.0247 (0.032)	0.0736* (0.0398)	-0.00684 (0.00758)	-0.222 (0.583)	-0.0345 (0.0402)	0.0507 (0.0743)	-0.0162 (0.0303)
<i>Dummy.LocalSOE</i>	-0.0103 (0.0266)	0.0651* (0.0353)	-0.00415 (0.00721)	-0.247 (0.542)	-0.0682* (0.0368)	0.0509 (0.0679)	0.0243 (0.0271)
<i>Dummy.ProvincialAssetBureau</i>	0.00751 (0.0517)	-0.0187 (0.0779)	0.0103 (0.0119)	0.49 (1.224)	0.0288 (0.0766)	0.163 (0.126)	-0.0494 (0.0706)
<i>Dummy.ProvincialDepartment</i>	-0.0251 (0.0376)	0.0549 (0.0545)	0.0126 (0.00891)	-0.0394 (0.694)	-0.077 (0.0567)	0.203** (0.0998)	0.0745** (0.0328)
<i>Dummy.ProvincialGovernment</i>	0.0248 (0.0407)	0.0455 (0.06)	-0.00468 (0.0111)	-0.769 (0.668)	-0.0183 (0.0597)	0.156 (0.121)	0.0113 (0.044)
<i>Dummy.ProvincialSASAC</i>	0.0392 (0.0282)	0.0332 (0.037)	-0.000181 (0.00726)	-0.797 (0.565)	0.0107 (0.0399)	0.131* (0.0731)	0.0187 (0.0284)
<i>Dummy.MunicipalAssetBureau</i>	-0.0168 (0.0295)	0.0913** (0.0426)	-0.0183** (0.00789)	-0.922 (0.663)	-0.0978** (0.0452)	-0.00462 (0.0866)	-0.0195 (0.0311)
<i>Dummy.MunicipalDepartment</i>	-0.0165 (0.037)	0.0516 (0.0541)	-0.00123 (0.00817)	-0.174 (0.702)	-0.0624 (0.0485)	0.0557 (0.088)	0.0248 (0.035)
<i>Dummy.MunicipalGovernment</i>	-0.0522 (0.0348)	0.106** (0.0445)	-0.0093 (0.00841)	-1.030* (0.572)	-0.140*** (0.0445)	0.106 (0.0936)	0.018 (0.0313)
<i>Dummy.MunicipalSASAC</i>	0.025 (0.0259)	0.0967*** (0.0359)	-0.0147** (0.00745)	-0.694 (0.544)	-0.0628* (0.0363)	0.017 (0.0728)	-0.00558 (0.0274)
<i>Dummy.ForeignEnterprise</i>	0.0225 (0.0298)	0.0834** (0.0375)	0.000242 (0.00815)	-0.225 (0.657)	-0.0492 (0.0413)	0.192** (0.0746)	0.0287 (0.0308)
<i>Dummy.ForeignIndividual</i>	-0.00266 (0.0506)	-0.017 (0.0574)	0.0236** (0.0103)	-0.156 (1.17)	0.0165 (0.0606)	0.410*** (0.0923)	0.0929** (0.0407)
<i>Dummy.PrivateEnterprise</i>	-0.0850* (0.0476)	-0.0903 (0.0729)	0.00986 (0.0107)	-0.99 (1.102)	0.0112 (0.0626)	0.0162 (0.131)	0.0473 (0.0394)
<i>Dummy.PrivateIndividual</i>	0.0132 (0.0226)	0.00244 (0.0301)	0.0107* (0.00627)	-0.0169 (0.519)	0.03 (0.0316)	0.130** (0.0609)	0.0600** (0.0244)
<i>Dummy.CollectivelyownedEnterprise</i>	0.00667 (0.0345)	-0.00564 (0.0582)	0.00483 (0.011)	0.327 (0.831)	0.0232 (0.0637)	0.018 (0.0999)	0.0417 (0.0321)
<i>Dummy.OperatingUnit</i>	-0.0504 (0.0325)	0.0782 (0.0675)	0.0118 (0.0156)	0.953 (1.133)	-0.112 (0.0765)	0.274** (0.108)	0.0389 (0.0508)
<i>Dummy.SocialOrganisation</i>	-0.0882 (0.0672)	-0.159* (0.0946)	0.0248** (0.0102)	-0.274 (0.637)	0.0865 (0.0766)	0.0754 (0.123)	0.0750* (0.0447)

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Control Variables							
<i>Ownership.Director</i>	0.231 (0.177)	0.0336 (0.188)	-0.102*** (0.0389)	-4.448 (4.473)	0.037 (0.19)	0.284 (0.363)	-0.299*** (0.098)
<i>Ownership.Supervisor</i>	0.0848 (0.343)	-0.49 (0.35)	-0.00931 (0.085)	-12.92** (5.341)	0.18 (0.35)	0.798* (0.474)	-0.0259 (0.16)
<i>Ownership.Executive</i>	-0.00399 (0.0334)	-0.0627* (0.0348)	0.0581*** (0.0105)	-2.274*** (0.838)	0.0509 (0.0415)	0.0576 (0.0805)	0.118*** (0.0329)
<i>Ownership.Management</i>	-0.197 (0.174)	-0.0277 (0.19)	0.167*** (0.0384)	2.23 (4.334)	-0.000348 (0.191)	0.338 (0.345)	0.488*** (0.0911)
<i>SSR</i>	0.0603*** (0.00638)	0.00389 (0.00763)	-2.77E-06 (0.0017)	-1.243*** (0.108)	0.0566*** (0.00887)	0.00207 (0.0162)	-0.00454 (0.00603)
<i>Size</i>	0.862*** (0.0175)	0.587*** (0.0207)	0.0111*** (0.00281)	-0.540** (0.272)	0.279*** (0.0231)	1.083*** (0.0297)	0.113*** (0.0115)
<i>Leverage</i>	-0.229** (0.101)	-0.119** (0.0579)	-0.0627*** (0.00871)	0.805 (0.739)	-0.100* (0.0573)	0.1 (0.0984)	-0.138*** (0.0449)
<i>Age</i>	0.000342 (0.00122)	-0.00890*** (0.00164)	-0.00111*** (0.000262)	0.351*** (0.0226)	0.00872*** (0.00167)	-0.0336*** (0.00249)	-0.00710*** (0.000994)
<i>Crisis</i>	0.0116*** (0.00324)	-0.0181*** (0.00439)	0.0122*** (0.000961)	2.015*** (0.0774)	0.0295*** (0.00487)	-0.0146 (0.00903)	0.0202*** (0.00323)
Constant	0.964*** (0.152)	-2.177*** (0.183)	-0.0590** (0.0247)	5.343** (2.378)	3.095*** (0.205)	-1.989*** (0.268)	-0.946*** (0.0993)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.723	0.371	0.052	0.085	0.211	0.288	0.042

Table 2.11 The Results of Heckman Two-step Selection Model

This table shows the results of the Heckman two-step selection model. The first-stage *Probit* model estimates whether the control of SASAC is affected by the firm value of previous year. The *Probit* model includes all control variables in the chapter, namely managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The second-stage regression estimates the relationship between ultimate controllers and firm performance with corrected self-selection. The second-stage regression also includes all control variables in the chapter, namely managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

First Stage Regression						
Independent Variables: Tobin's Q of Last Year	Dependent Variable: SASAC's Control					
	Dummy.SASAC	Dummy.SASAC	Dummy.SASAC	Dummy.SASAC	Dummy.SASAC	Dummy.SASAC
<i>Tobin's Q_{t-1}</i>	-0.00170** (0.000675)	-0.00170** (0.000675)	-0.00170** (0.000675)	-0.00170** (0.000675)	-0.00170** (0.000675)	-0.00170** (0.000675)
Control Variables						
<i>Ownership.Director</i>	-1.335** (0.674)	-1.335** (0.674)	-1.335** (0.674)	-1.335** (0.674)	-1.335** (0.674)	-1.335** (0.674)
<i>Ownership.Supervisor</i>	0.63 (1.292)	0.63 (1.292)	0.63 (1.292)	0.63 (1.292)	0.63 (1.292)	0.63 (1.292)
<i>Ownership.Executive</i>	0.111 (0.248)	0.111 (0.248)	0.111 (0.248)	0.111 (0.248)	0.111 (0.248)	0.111 (0.248)
<i>Ownership.Management</i>	-1.268* (0.697)	-1.268* (0.697)	-1.268* (0.697)	-1.268* (0.697)	-1.268* (0.697)	-1.268* (0.697)
<i>SSR</i>	0.0938*** (0.00715)	0.0938*** (0.00715)	0.0938*** (0.00715)	0.0938*** (0.00715)	0.0938*** (0.00715)	0.0938*** (0.00715)
<i>Size</i>	0.172*** (0.00667)	0.172*** (0.00667)	0.172*** (0.00667)	0.172*** (0.00667)	0.172*** (0.00667)	0.172*** (0.00667)
<i>Leverage</i>	-0.0177 (0.0209)	-0.0177 (0.0209)	-0.0177 (0.0209)	-0.0177 (0.0209)	-0.0177 (0.0209)	-0.0177 (0.0209)
<i>Age</i>	-0.00377*** (0.000567)	-0.00377*** (0.000567)	-0.00377*** (0.000567)	-0.00377*** (0.000567)	-0.00377*** (0.000567)	-0.00377*** (0.000567)
<i>Crisis</i>	0.0206*** (0.00657)	0.0206*** (0.00657)	0.0206*** (0.00657)	0.0206*** (0.00657)	0.0206*** (0.00657)	0.0206*** (0.00657)
Observations	20_360	20_360	20_360	20_360	20_360	20_360
Second Stage Regression						
Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures					
	Operating Revenue	Employee	ROA	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.PublicInstitution</i>	-0.0768** (0.0328)	0.0395 (0.0553)	-0.00726 (0.0109)	-0.108* (0.0607)	0.0869 (0.0941)	-0.0342 (0.0434)
<i>Dummy.CentralAssetBureau</i>	0.0609** (0.031)	-0.124 (0.126)	0.0305*** (0.009)	0.207* (0.125)	-0.185 (0.322)	0.0987 (0.064)
<i>Dummy.CentralDepartment</i>	-0.00323 (0.039)	0.130** (0.055)	-0.00149 (0.010)	-0.121** (0.053)	0.0786 (0.093)	-0.0377 (0.050)
<i>Dummy.CentralSASAC</i>	0.0616** (0.029)	0.0975*** (0.037)	-0.00778 (0.008)	-0.0236 (0.039)	-0.00502 (0.074)	-0.0125 (0.033)
<i>Dummy.CentralSOE</i>	0.0185 (0.037)	0.109*** (0.041)	-0.00758 (0.008)	-0.0709 (0.044)	0.0332 (0.080)	-0.03 (0.035)
<i>Dummy.LocalSOE</i>	0.0164 (0.031)	0.0611 (0.038)	-0.0034 (0.009)	-0.033 (0.043)	0.0119 (0.076)	0.0271 (0.031)
<i>Dummy.ProvincialAssetBureau</i>	-0.0416 (0.057)	-0.0715 (0.099)	0.00892 (0.017)	0.0365 (0.099)	0.132 (0.190)	-0.00679 (0.086)
<i>Dummy.ProvincialDepartment</i>	-0.0291 (0.046)	0.0383 (0.069)	0.0174 (0.011)	-0.0618 (0.071)	0.184 (0.123)	0.0880** (0.039)
<i>Dummy.ProvincialGovernment</i>	0.0374 (0.050)	0.0233 (0.076)	-0.00354 (0.013)	0.0177 (0.073)	0.106 (0.148)	0.0241 (0.053)
<i>Dummy.ProvincialSASAC</i>	0.0449 (0.031)	0.0474 (0.039)	0.0025 (0.008)	0.00381 (0.044)	0.103 (0.078)	0.024 (0.033)
<i>Dummy.MunicipalAssetBureau</i>	0.00859 (0.032)	0.0853* (0.046)	-0.0164* (0.009)	-0.0624 (0.048)	-0.0524 (0.099)	-0.0189 (0.037)
<i>Dummy.MunicipalDepartment</i>	-0.0115 (0.039)	0.0784 (0.062)	0.000981 (0.010)	-0.0705 (0.057)	0.0241 (0.089)	0.0314 (0.041)
<i>Dummy.MunicipalGovernment</i>	-0.0613 (0.039)	0.105** (0.048)	-0.00968 (0.010)	-0.138*** (0.053)	0.0397 (0.102)	0.0199 (0.037)
<i>Dummy.MunicipalSASAC</i>	0.0352 (0.027)	0.111*** (0.037)	-0.0132 (0.008)	-0.0633 (0.039)	-0.0337 (0.075)	-0.00496 (0.030)
<i>Dummy.ForeignEnterprise</i>	0.0184 (0.037)	0.0732 (0.047)	-0.00167 (0.010)	-0.0414 (0.056)	0.0826 (0.085)	0.0398 (0.038)
<i>Dummy.ForeignIndividual</i>	-0.016 (0.052)	-0.0272 (0.054)	0.0218** (0.010)	0.00815 (0.052)	0.446*** (0.105)	0.0936** (0.045)
<i>Dummy.PrivateEnterprise</i>	-0.0792 (0.052)	-0.0769 (0.082)	0.0108 (0.011)	-0.00788 (0.070)	-0.0756 (0.131)	0.0429 (0.046)
<i>Dummy.PrivateIndividual</i>	0.0142 (0.023)	0.0191 (0.030)	0.0104 (0.007)	0.0151 (0.033)	0.09 (0.062)	0.0526* (0.027)
<i>Dummy.CollectivelyownedEnterprise</i>	-0.00997 (0.034)	-0.0157 (0.063)	0.00131 (0.011)	-0.0143 (0.072)	-0.0709 (0.105)	0.0371 (0.035)
<i>Dummy.OperatingUnit</i>	-0.0524 (0.035)	0.0936 (0.070)	0.00508 (0.014)	-0.147** (0.075)	0.213* (0.111)	0.028 (0.047)
<i>Dummy.SocialOrganisation</i>	-0.0978 (0.072)	-0.175* (0.103)	0.0287** (0.011)	0.0937 (0.089)	0.0284 (0.131)	0.0796 (0.050)

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Control Variables						
<i>Ownership.Director</i>	-0.459 (0.347)	-0.383 (0.434)	-0.0404 (0.076)	-0.456 (0.459)	-1.659** (0.763)	0.0503 (0.245)
<i>Ownership.Supervisor</i>	0.628 (0.403)	-0.134 (0.353)	-0.0194 (0.089)	0.351 (0.357)	1.653*** (0.633)	-0.16 (0.204)
<i>Ownership.Executive</i>	0.0621 (0.043)	-0.0503 (0.049)	0.0498*** (0.013)	0.121** (0.056)	0.325*** (0.104)	0.0976** (0.043)
<i>Ownership.Management</i>	-0.856*** (0.324)	-0.246 (0.407)	0.144** (0.073)	-0.595 (0.437)	-0.958 (0.776)	0.634*** (0.241)
<i>SSR</i>	0.0817*** (0.017)	0.0173 (0.023)	-0.000411 (0.004)	0.0738*** (0.025)	0.108*** (0.041)	-0.0115 (0.014)
<i>Size</i>	0.928*** (0.036)	0.608*** (0.046)	0.0123* (0.007)	0.334*** (0.053)	1.256*** (0.076)	0.0947*** (0.025)
<i>Leverage</i>	-0.247** (0.106)	-0.115** (0.055)	-0.0674*** (0.009)	-0.121* (0.067)	0.122 (0.096)	-0.145*** (0.044)
<i>Age</i>	-0.00122 (0.002)	-0.00877*** (0.002)	-0.000987*** (0.000)	0.00694*** (0.002)	-0.0395*** (0.003)	-0.00659*** (0.001)
<i>Crisis</i>	0.0191*** (0.004)	-0.0137** (0.006)	0.0102*** (0.001)	0.0341*** (0.007)	0.0169 (0.012)	0.0153*** (0.004)
<i>lambda</i>	0.147** (0.062)	0.0754 (0.084)	-0.00656 (0.014)	0.113 (0.092)	0.371** (0.147)	-0.0564 (0.049)
Constant	0.225 (0.381)	-2.468*** (0.492)	-0.0657 (0.079)	2.501*** (0.567)	-3.907*** (0.823)	-0.726*** (0.269)
Observations	19,919	19,976	20,022	19,736	19,972	19,964
Number of Firms	2,637	2,635	2,647	2,629	2,640	2,643
R-squared	0.711	0.359	0.039	0.181	0.279	0.039

Table 2.12 Regression Results of the Effects of Twenty-one Types of Ultimate Controllers on Alternative Firm Performance

This table employs the equation 2.b (See the detailed interpretation of variables in the methodology, section 2.3) and presents the regression results of the effects of 21 types of ultimate controllers on alternative firm performance. The firm performance measures include firm output (operating profit) in column 2, profitability (net profit margin) in column 3, labour productivity (operating profit per employee) in column 4 and operating efficiency (expense ratio) in column 5. The table shows the coefficients of 21 dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures			
	Operating Profit	Net Profit Margin	Operating Profit per Employee	Expense Ratio
<i>Dummy .PublicInstitution</i>	-0.102 (0.0802)	-0.00759 (0.0317)	-0.125 (0.0825)	0.0250* (0.0129)
<i>Dummy .CentralAssetBureau</i>	0.301*** (0.0629)	0.0814* (0.0437)	0.565*** (0.208)	-0.026 (0.0218)
<i>Dummy .CentralDepartment</i>	0.0888 (0.082)	0.00075 (0.039)	-0.0411 (0.0972)	0.0196 (0.0148)
<i>Dummy .CentralSASAC</i>	-0.0245 (0.0636)	-0.0154 (0.0252)	-0.117 (0.0752)	-0.00277 (0.00953)
<i>Dummy .CentralSOE</i>	-0.0125 (0.0648)	-0.0102 (0.0258)	-0.0726 (0.0754)	0.00303 (0.0102)
<i>Dummy .LocalSOE</i>	-0.0523 (0.0571)	0.0229 (0.0245)	-0.114* (0.0683)	0.000941 (0.00937)
<i>Dummy .ProvincialAssetBureau</i>	0.0121 (0.0878)	-0.0316 (0.0516)	-0.031 (0.143)	0.00604 (0.0163)
<i>Dummy .ProvincialDepartment</i>	-0.0617 (0.0746)	0.0673** (0.029)	-0.135 (0.0901)	-0.0105 (0.0157)
<i>Dummy .ProvincialGovernment</i>	-0.0452 (0.0752)	0.012 (0.0405)	-0.133 (0.103)	-0.00972 (0.0169)
<i>Dummy .ProvincialSASAC</i>	-0.0699 (0.0619)	0.0225 (0.0259)	-0.112 (0.0741)	-0.00372 (0.0105)
<i>Dummy .MunicipalAssetBureau</i>	-0.121* (0.0678)	-0.0384 (0.0297)	-0.188** (0.0832)	0.00582 (0.0125)
<i>Dummy .MunicipalDepartment</i>	-0.022 (0.076)	0.0309 (0.0301)	-0.0855 (0.102)	-0.0131 (0.0125)
<i>Dummy .MunicipalGovernment</i>	-0.0745 (0.0744)	0.00905 (0.0292)	-0.191** (0.0873)	0.00461 (0.0109)
<i>Dummy .MunicipalSASAC</i>	-0.0507 (0.0593)	-0.00937 (0.0254)	-0.137* (0.0718)	0.00541 (0.00955)
<i>Dummy .ForeignEnterprise</i>	-0.01 (0.0693)	0.0224 (0.028)	-0.0937 (0.0816)	0.00502 (0.00989)
<i>Dummy .ForeignIndividual</i>	0.0867 (0.0867)	0.0834** (0.0335)	0.0725 (0.0956)	-0.0261 (0.016)
<i>Dummy .PrivateEnterprise</i>	-0.00803 (0.0951)	0.0426 (0.0331)	0.0432 (0.141)	0.00703 (0.0131)
<i>Dummy .PrivateIndividual</i>	0.0502 (0.0526)	0.0513** (0.0228)	0.0438 (0.0616)	0.00139 (0.00859)

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<i>Dummy.CollectivelyownedEnterprise</i>	-0.0166 (0.123)	0.0403 (0.0276)	-0.0044 (0.145)	-0.00948 (0.0105)
<i>Dummy.OperatingUnit</i>	-0.0158 (0.144)	0.0098 (0.0482)	-0.0897 (0.198)	-0.0164 (0.0158)
<i>Dummy.SocialOrganisation</i>	-0.00384 (0.0914)	0.113*** (0.0376)	0.0694 (0.123)	0.0134 (0.0131)
Control Variables				
<i>Ownership.Director</i>	-0.525* (0.318)	-0.252*** (0.0796)	-0.913*** (0.342)	0.0241 (0.038)
<i>Ownership.Supervisor</i>	0.0256 (0.632)	-0.0261 (0.136)	-0.277 (0.689)	-0.144* (0.086)
<i>Ownership.Executive</i>	0.303*** (0.0752)	0.109*** (0.0294)	0.346*** (0.0831)	-0.00584 (0.0127)
<i>Ownership.Management</i>	0.918*** (0.316)	0.407*** (0.0748)	1.298*** (0.339)	-0.0657* (0.0339)
<i>SSR</i>	0.0339** (0.0138)	-0.0035 (0.0057)	0.0323* (0.0166)	-0.00305 (0.00203)
<i>Size</i>	0.923*** (0.0245)	0.0621*** (0.00972)	0.329*** (0.035)	-0.0172*** (0.00448)
<i>Leverage</i>	-0.456*** (0.0764)	-0.112** (0.0451)	-0.273*** (0.0804)	0.0966*** (0.0208)
<i>Age</i>	-0.00936*** (0.00229)	-0.00282*** (0.000828)	-0.00333 (0.00295)	0.00137*** (0.000338)
<i>Crisis</i>	0.0714*** (0.00784)	0.0229*** (0.00292)	0.0925*** (0.00893)	-0.00407*** (0.00105)
Constant	-0.628*** (0.218)	-0.524*** (0.0853)	1.663*** (0.311)	0.230*** (0.0402)
Observations	19,533	23,028	19,292	23,015
Number of Firms	2,810	2,825	2,795	2,826
R-squared	0.322	0.028	0.059	0.039

Table 2.13 Regression Results of the Effects of Ultimate Controllers on Firm Performance from 2003 to 2005

This table employs the equation 2.b (See the detailed interpretation of variables in the methodology, section 2.3) and presents the regression results of the effect of ultimate controllers on firm performance. The Dummy.CentralAssetBureau and Dummy.OperatingUnit are dropped to avoid collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of 19 dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage.

The sample is yearly from 2003 to 2005.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.PublicInstitution</i>	-0.0159 (0.086)	0.00731 (0.056)	0.0275 (0.025)	0.561 (1.906)	-0.0551 (0.077)	-0.00318 (0.222)	0.182 (0.168)
<i>Dummy.CentralDepartment</i>	0.0177 (0.083)	-0.0204 (0.061)	0.0245 (0.029)	0.211 (2.030)	0.00807 (0.075)	0.278 (0.216)	0.0435 (0.205)
<i>Dummy.CentralSASAC</i>	0.041 (0.077)	0.00513 (0.053)	0.0409 (0.025)	1.087 (1.749)	0.00854 (0.067)	0.183 (0.202)	0.196 (0.163)
<i>Dummy.CentralSOE</i>	0.0383 (0.077)	-0.0088 (0.054)	0.029 (0.025)	1.322 (1.741)	0.0177 (0.069)	0.146 (0.200)	0.166 (0.162)
<i>Dummy.LocalSOE</i>	0.00743 (0.074)	0.0115 (0.047)	0.0345 (0.024)	0.952 (1.683)	-0.0345 (0.061)	0.131 (0.191)	0.203 (0.159)
<i>Dummy.ProvincialAssetBureau</i>	0.109 (0.093)	0.00868 (0.061)	0.0395 (0.028)	1.004 (1.718)	0.0688 (0.089)	0.167 (0.213)	0.00957 (0.186)
<i>Dummy.ProvincialDepartment</i>	-0.00615 (0.081)	-0.00803 (0.055)	0.0481* (0.026)	1.492 (1.973)	-0.0276 (0.073)	0.181 (0.207)	0.294* (0.166)
<i>Dummy.ProvincialGovernment</i>	0.0155 (0.081)	-0.00932 (0.052)	0.0355 (0.025)	1.291 (1.698)	-0.00584 (0.071)	0.317 (0.216)	0.234 (0.161)
<i>Dummy.ProvincialSASAC</i>	0.0345 (0.075)	0.00824 (0.050)	0.0455* (0.024)	1.015 (1.677)	-0.00486 (0.064)	0.274 (0.194)	0.229 (0.160)
<i>Dummy.MunicipalAssetBureau</i>	0.00692 (0.078)	-0.00905 (0.052)	0.0358 (0.025)	1.397 (1.712)	-0.017 (0.070)	0.123 (0.206)	0.221 (0.163)
<i>Dummy.MunicipalDepartment</i>	0.0235 (0.074)	0.0192 (0.048)	0.0426* (0.025)	2.226 (1.711)	-0.0258 (0.060)	0.237 (0.205)	0.24 (0.167)
<i>Dummy.MunicipalGovernment</i>	0.0156 (0.075)	0.017 (0.047)	0.0469* (0.024)	1.212 (1.697)	-0.0318 (0.063)	0.199 (0.201)	0.216 (0.160)
<i>Dummy.MunicipalSASAC</i>	0.026 (0.075)	0.00702 (0.048)	0.0322 (0.024)	1.214 (1.700)	-0.00786 (0.062)	0.148 (0.197)	0.202 (0.161)
<i>Dummy.ForeignEnterprise</i>	0.0789 (0.081)	0.00964 (0.052)	0.0500* (0.026)	2.438 (1.864)	0.0309 (0.071)	0.321 (0.207)	0.226 (0.164)
<i>Dummy.ForeignIndividual</i>	0.0102 (0.109)	-0.0118 (0.058)	0.0668 (0.050)	0.587 (2.335)	-0.0027 (0.105)	-0.0739 (0.258)	0.224 (0.164)
<i>Dummy.PrivateEnterprise</i>	0.046 (0.094)	-0.0043 (0.069)	0.0439* (0.026)	2.217 (1.850)	0.0122 (0.107)	0.256 (0.283)	0.239 (0.168)
<i>Dummy.PrivateIndividual</i>	0.0459 (0.078)	-0.0244 (0.050)	0.0455* (0.026)	2.14 (1.847)	0.0298 (0.067)	0.21 (0.203)	0.226 (0.163)
<i>Dummy.CollectivelyownedEnterprise</i>	0.101 (0.108)	-0.0493 (0.051)	0.0525* (0.028)	-1.354 (2.940)	0.115 (0.107)	0.0621 (0.276)	0.216 (0.165)
<i>Dummy.SocialOrganisation</i>	0.0993 (0.088)	-0.0258 (0.055)	0.0610** (0.030)	1.339 (1.889)	0.0883 (0.078)	0.248 (0.249)	0.258 (0.165)

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Control Variables							
<i>Ownership.Director</i>	0.579 (0.955)	0.0857 (1.106)	0.333 (0.275)	-3.245 (11.460)	0.454 (1.407)	0.533 (8.199)	1.48 (1.143)
<i>Ownership.Supervisor</i>	-0.0499 (1.082)	-0.499 (1.306)	0.0158 (0.298)	-0.313 (11.940)	0.411 (1.582)	2.553 (8.600)	-1.49 (1.427)
<i>Ownership.Executive</i>	-0.173 (0.154)	0.0208 (0.122)	0.00827 (0.050)	-1.137 (1.925)	-0.196 (0.210)	-0.825 (0.878)	0.0106 (0.229)
<i>Ownership.Management</i>	-0.312 (0.919)	-0.0658 (1.084)	-0.19 (0.229)	1.145 (11.240)	-0.206 (1.338)	-0.489 (8.068)	-0.71 (0.787)
<i>Size</i>	0.920*** (0.065)	0.459*** (0.053)	0.0853*** (0.020)	0.671 (1.076)	0.472*** (0.067)	1.642*** (0.131)	0.446*** (0.099)
<i>Leverage</i>	-0.196 (0.135)	-0.0679 (0.092)	-0.0561 (0.037)	0.386 (1.504)	-0.101 (0.116)	0.351* (0.180)	-0.166 (0.174)
<i>Age</i>	0.0267*** (0.005)	-0.00556 (0.004)	-0.0121*** (0.002)	-0.526*** (0.077)	0.0310*** (0.005)	-0.0910*** (0.012)	-0.0460*** (0.007)
Constant	0.136 (0.581)	-0.985** (0.485)	-0.675*** (0.177)	0.512 (9.632)	1.068* (0.603)	-6.675*** (1.189)	-3.813*** (0.866)
Observations	3,529	3,539	3,482	3,545	3,502	3,514	3,468
Number of Firms	1,303	1,309	1,304	1,314	1,297	1,302	1,302
R-squared	0.37	0.093	0.072	0.06	0.139	0.148	0.087

Table 2.14 Regression Results of the Effects of Ultimate Controllers on Firm Performance from 2006 to 2009

This table employs the equation 2.b (See the detailed interpretation of variables in the methodology, section 2.3) and presents the regression results of the effect of ultimate controllers on firm performance. The Dummy.OperatingUnit is dropped to avoid collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of 20 dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2006 to 2009.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.PublicInstitution</i>	-0.0354 (0.068)	0.16 (0.199)	-0.0379 (0.027)	-0.14 (2.246)	-0.0358 (0.076)	0.482 (0.312)	0.0659 (0.123)
<i>Dummy.CentralAssetBureau</i>	0.0487 (0.0503)	0.244 (-0.206)	0.0104 (-0.0236)	2.394 (-1.524)	0.0141 (-0.0924)	-0.0739 (-0.4)	0.0848 (-0.079)
<i>Dummy.CentralDepartment</i>	-0.00869 (0.097)	0.376* (0.210)	-0.0481* (0.029)	-0.611 (2.275)	-0.208* (0.116)	0.381 (0.317)	-0.0841 (0.075)
<i>Dummy.CentralSASAC</i>	-0.0154 (0.052)	0.267 (0.194)	-0.0315 (0.025)	1.285 (1.409)	-0.109* (0.058)	0.193 (0.248)	-0.0366 (0.046)
<i>Dummy.CentralSOE</i>	-0.0222 (0.055)	0.287 (0.201)	-0.0397 (0.025)	0.72 (1.546)	-0.126** (0.063)	0.272 (0.252)	-0.0547 (0.052)
<i>Dummy.LocalSOE</i>	-0.0389 (0.051)	0.206 (0.193)	-0.0347 (0.024)	1.875 (1.300)	-0.0456 (0.068)	0.144 (0.249)	-0.0232 (0.049)
<i>Dummy.ProvincialAssetBureau</i>	-0.131 (0.106)	0.202 (0.204)	-0.00998 (0.030)	-0.0895 (1.710)	-0.128 (0.111)	-0.113 (0.531)	0.0522 (0.073)
<i>Dummy.ProvincialDepartment</i>	-0.0307 (0.103)	0.303 (0.201)	0.0201 (0.034)	2.132 (1.679)	-0.127 (0.119)	0.121 (0.396)	0.0691 (0.087)
<i>Dummy.ProvincialGovernment</i>	0.0345 (0.057)	0.158 (0.216)	-0.0241 (0.037)	-0.649 (1.790)	0.0696 (0.112)	0.0813 (0.275)	-0.0318 (0.092)
<i>Dummy.ProvincialSASAC</i>	0.0296 (0.052)	0.241 (0.194)	-0.0255 (0.024)	1.336 (1.454)	-0.0253 (0.070)	0.22 (0.254)	0.0213 (0.051)
<i>Dummy.MunicipalAssetBureau</i>	-0.0508 (0.045)	0.224 (0.195)	-0.0332 (0.028)	5.031** (2.249)	-0.0666 (0.072)	-0.191 (0.267)	-0.0491 (0.079)
<i>Dummy.MunicipalDepartment</i>	-0.0247 (0.055)	0.296 (0.190)	-0.0274 (0.028)	0.247 (2.037)	-0.157*** (0.058)	0.174 (0.270)	-0.0714 (0.106)
<i>Dummy.MunicipalGovernment</i>	-0.0715 (0.056)	0.3 (0.197)	-0.0590** (0.025)	0.264 (1.305)	-0.126** (0.059)	0.3 (0.276)	-0.0753 (0.060)
<i>Dummy.MunicipalSASAC</i>	-0.00787 (0.041)	0.269 (0.186)	-0.0396* (0.023)	1.876 (1.233)	-0.0927* (0.052)	0.0396 (0.242)	-0.0405 (0.044)
<i>Dummy.ForeignEnterprise</i>	-0.0512 (0.055)	0.263 (0.191)	-0.0624** (0.027)	2.304* (1.224)	-0.137* (0.070)	0.209 (0.271)	-0.0504 (0.058)
<i>Dummy.ForeignIndividual</i>	-0.00825 (0.082)	0.118 (0.229)	-0.0288 (0.038)	3.911*** (1.429)	-0.0415 (0.107)	0.998*** (0.341)	0.00755 (0.141)
<i>Dummy.PrivateEnterprise</i>	-0.163* (0.088)	0.0579 (0.209)	-0.0263 (0.028)	-2.687 (2.765)	0.0165 (0.091)	0.143 (0.301)	0.00371 (0.072)
<i>Dummy.PrivateIndividual</i>	-0.00411 (0.044)	0.266 (0.188)	-0.0265 (0.023)	2.298** (1.102)	-0.0466 (0.055)	0.259 (0.247)	-0.00144 (0.048)
<i>Dummy.CollectivelyownedEnterprise</i>	0.121*** (0.046)	0.297 (0.190)	0.00768 (0.026)	2.202* (1.314)	0.0241 (0.058)	0.329 (0.369)	0.0915* (0.050)
<i>Dummy.SocialOrganisation</i>	-0.031 (0.101)	0.287 (0.200)	-0.0415* (0.024)	2.832** (1.230)	-0.117 (0.132)	0.158 (0.284)	-0.0363 (0.049)

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Control Variables							
<i>Ownership.Director</i>	-0.33 (0.621)	0.295 (0.222)	-0.044 (0.075)	-10.22* (5.673)	-0.557 (0.589)	-0.989 (0.754)	-0.0664 (0.124)
<i>Ownership.Supervisor</i>	-0.615 (0.871)	0.359 (0.406)	0.0178 (0.303)	-17.39 (11.700)	-1.1 (0.843)	0.255 (1.256)	-0.258 (0.278)
<i>Ownership.Executive</i>	-0.0237 (0.063)	0.0579 (0.056)	0.0663** (0.033)	2.561 (2.545)	-0.0487 (0.087)	0.217 (0.216)	0.049 (0.047)
<i>Ownership.Management</i>	0.391 (0.673)	-0.570** (0.247)	0.0907 (0.084)	8.727 (6.635)	0.961 (0.655)	0.994 (0.845)	0.21 (0.141)
<i>Size</i>	0.768*** (0.037)	0.424*** (0.043)	0.0279** (0.011)	1.136* (0.614)	0.351*** (0.054)	1.134*** (0.093)	0.240*** (0.036)
<i>Leverage</i>	-0.220*** (0.072)	-0.146** (0.070)	-0.0744*** (0.018)	1.802 (1.523)	-0.0515 (0.108)	0.295* (0.176)	-0.257*** (0.079)
<i>Age</i>	-0.00754** (0.004)	-0.00997*** (0.004)	-0.00807*** (0.001)	-0.552*** (0.089)	0.00155 (0.004)	-0.0513*** (0.010)	-0.0262*** (0.004)
<i>Crisis</i>	0.0435*** -0.00651	0.0122* -0.00659	0.0163*** -0.00224	3.061*** -0.176	0.0347*** -0.00839	0.0661*** -0.0191	0.0218*** -0.0074
Constant	1.998*** (0.326)	-0.852* (0.435)	-0.0997 (0.098)	-3.178 (5.551)	2.591*** (0.482)	-2.415*** (0.823)	-1.838*** (0.302)
Observations	5,138	5,121	5,107	5,139	5,065	5,128	5,104
Number of Firms	1,640	1,639	1,642	1,650	1,632	1,640	1,646
R-squared	0.442	0.182	0.039	0.099	0.114	0.166	0.056

Table 2.15 Regression Results of the Effects of Ultimate Controllers on Firm Performance from 2010 to 2016

This table employs the equation 2.b (See the detailed interpretation of variables in the methodology, section 2.3) and presents the regression results of the effect of ultimate controllers on firm performance. The Dummy.CentralAssetBureau is dropped to avoid collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in column 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of 20 dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2010 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Ultimate Controllers Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.PublicInstitution</i>	-0.0611 (0.040)	0.0562 (0.061)	0.00676 (0.014)	-0.493 (0.904)	-0.111* (0.065)	-0.0801 (0.098)	0.00454 (0.047)
<i>Dummy.CentralDepartment</i>	-0.0327 (0.055)	0.105 (0.072)	0.0129 (0.014)	-0.0851 (0.863)	-0.143** (0.073)	-0.00175 (0.089)	0.00107 (0.071)
<i>Dummy.CentralSASAC</i>	-0.0163 (0.033)	0.0363 (0.042)	-0.00386 (0.011)	-0.936 (0.679)	-0.0651* (0.039)	-0.022 (0.090)	-0.000229 (0.047)
<i>Dummy.CentralSOE</i>	-0.0315 (0.035)	0.0897* (0.049)	-0.00326 (0.011)	-0.336 (0.731)	-0.130*** (0.048)	-0.0428 (0.089)	-0.0116 (0.046)
<i>Dummy.LocalSOE</i>	0.0411 (0.039)	0.136*** (0.043)	-0.00218 (0.012)	0.285 (0.848)	-0.0904* (0.048)	0.112 (0.098)	0.0187 (0.045)
<i>Dummy.ProvincialAssetBureau</i>	-0.00706 (0.056)	0.0525 (0.071)	-0.0171 (0.025)	-0.75 (0.989)	-0.0021 (0.158)	0.0698 (0.345)	-0.0315 (0.055)
<i>Dummy.ProvincialDepartment</i>	-0.000965 (0.046)	0.0771 (0.061)	-0.00774 (0.014)	-0.404 (1.098)	-0.0615 (0.060)	-0.0783 (0.152)	-0.0318 (0.057)
<i>Dummy.ProvincialGovernment</i>	0.0495 (0.051)	0.0949 (0.067)	-0.0373** (0.018)	1.148 (1.370)	-0.0356 (0.066)	0.157 (0.160)	-0.158 (0.099)
<i>Dummy.ProvincialSASAC</i>	0.0328 (0.040)	0.100* (0.053)	-0.0109 (0.011)	-1.382 (0.870)	-0.0724 (0.046)	0.0352 (0.087)	-0.0222 (0.045)
<i>Dummy.MunicipalAssetBureau</i>	0.0719* (0.042)	0.149** (0.065)	-0.0335*** (0.011)	-1.102 (1.373)	-0.049 (0.066)	-0.112 (0.127)	-0.0431 (0.042)
<i>Dummy.MunicipalDepartment</i>	-0.032 (0.062)	0.0439 (0.074)	-0.00391 (0.015)	-0.468 (1.537)	-0.0684 (0.056)	-0.182 (0.120)	-0.00512 (0.054)
<i>Dummy.MunicipalGovernment</i>	-0.00198 (0.064)	0.0568 (0.044)	-0.0391** (0.018)	-1.169 (1.100)	-0.0526 (0.084)	-0.138 (0.117)	-0.0525 (0.037)
<i>Dummy.MunicipalSASAC</i>	0.0438 (0.035)	0.108** (0.045)	-0.0285*** (0.010)	0.163 (0.977)	-0.0528 (0.044)	-0.0901 (0.097)	-0.0353 (0.039)
<i>Dummy.ForeignEnterprise</i>	0.000122 (0.057)	-0.0465 (0.071)	0.00895 (0.012)	-0.628 (1.804)	-0.018 (0.058)	0.0741 (0.133)	-0.0575 (0.132)
<i>Dummy.ForeignIndividual</i>	-0.0562 (0.047)	0.0161 (0.048)	-0.0113 (0.009)	-2.354 (1.642)	-0.0819* (0.049)	0.191* (0.110)	-0.0187 (0.039)
<i>Dummy.PrivateEnterprise</i>	-0.0657 (0.051)	-0.0771 (0.073)	0.00268 (0.012)	-0.124 (1.787)	-0.025 (0.060)	-0.265* (0.161)	-0.00536 (0.053)
<i>Dummy.PrivateIndividual</i>	0.00525 (0.022)	0.0184 (0.027)	0.0105 (0.007)	-0.174 (0.553)	-0.00499 (0.028)	0.0542 (0.055)	0.0292 (0.029)
<i>Dummy.CollectivelyownedEnterprise</i>	0.0382 (0.049)	-0.0928 (0.107)	-0.00208 (0.013)	0.526 (0.858)	0.122 (0.107)	-0.286** (0.116)	3.56E-05 (0.060)
<i>Dummy.OperatingUnit</i>	-0.0324 (0.0345)	0.026 (0.046)	0.0101 (0.0192)	1.106 (1.074)	-0.077 (0.0536)	0.122 (0.0865)	-0.00224 (0.0676)
<i>Dummy.SocialOrganisation</i>	-0.190* (0.098)	-0.440** (0.208)	0.0165 (0.014)	-0.495 (1.576)	0.255 (0.213)	-0.323 (0.283)	0.0577 (0.119)

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Control Variables							
<i>Ownership.Director</i>	0.313 (0.218)	-0.0286 (0.192)	-0.0672* (0.036)	-6.739 (4.442)	0.0763 (0.189)	0.806** (0.336)	-0.191* (0.112)
<i>Ownership.Supervisor</i>	0.249 (0.433)	-0.467 (0.387)	0.0491 (0.067)	-10.73** (4.839)	0.151 (0.341)	0.841* (0.490)	0.0484 (0.204)
<i>Ownership.Executive</i>	-0.0468 (0.036)	-0.0760** (0.036)	0.0516*** (0.011)	-1.664* (0.930)	0.0346 (0.040)	0.0572 (0.085)	0.117*** (0.038)
<i>Ownership.Management</i>	-0.353 (0.216)	0.123 (0.192)	0.0895*** (0.035)	4.274 (4.272)	-0.225 (0.183)	-0.275 (0.320)	0.286*** (0.106)
<i>Size</i>	0.825*** (0.020)	0.586*** (0.024)	0.0297*** (0.004)	-0.236 (0.461)	0.244*** (0.026)	1.120*** (0.041)	0.170*** (0.018)
<i>Leverage</i>	-0.167*** (0.065)	-0.0833* (0.048)	-0.100*** (0.013)	4.071*** (1.180)	-0.0781** (0.033)	0.0578 (0.104)	-0.198*** (0.058)
<i>Age</i>	-0.0105*** (0.002)	-0.00804*** (0.002)	-0.00600*** (0.000)	0.717*** (0.040)	-0.0031 (0.002)	-0.0695*** (0.004)	-0.0196*** (0.002)
<i>Crisis</i>	-0.0295*** (0.00415)	-0.0290*** (0.00472)	0.00888*** (0.00126)	3.263*** (0.0983)	-0.0023 (0.00544)	-0.117*** (0.0116)	0.00972** (0.00379)
Constant	1.550*** (0.172)	-2.208*** (0.213)	-0.146*** (0.033)	-4.149 (4.004)	3.722*** (0.231)	-1.640*** (0.364)	-1.248*** (0.149)
Observations	14,320	14,385	14,470	14,334	14,206	14,389	14,447
Number of Firms	2,760	2,758	2,779	2,772	2,750	2,765	2,776
R-squared	0.623	0.37	0.111	0.12	0.077	0.236	0.081

Figures of Chapter Two

Figure 2.1 Control Structure of Listed Firms

This figure shows the control structure of listed firms proposed in the thesis. The rectangles on the left represent the ultimate controller, middle investment or management companies and direct controlling shareholders from top to bottom. The rectangles on the right represent the principal, manager and agent from top to bottom. The control structure includes: First level (principal) is the administration of the state-owned asset, such as government, SASAC, asset management bureau etc. Second level (manager) is the management and operation of the state-owned asset, such as the state-owned capital investment and operation companies. Third level (agent) is the direct controlling shareholders of the listed firms.

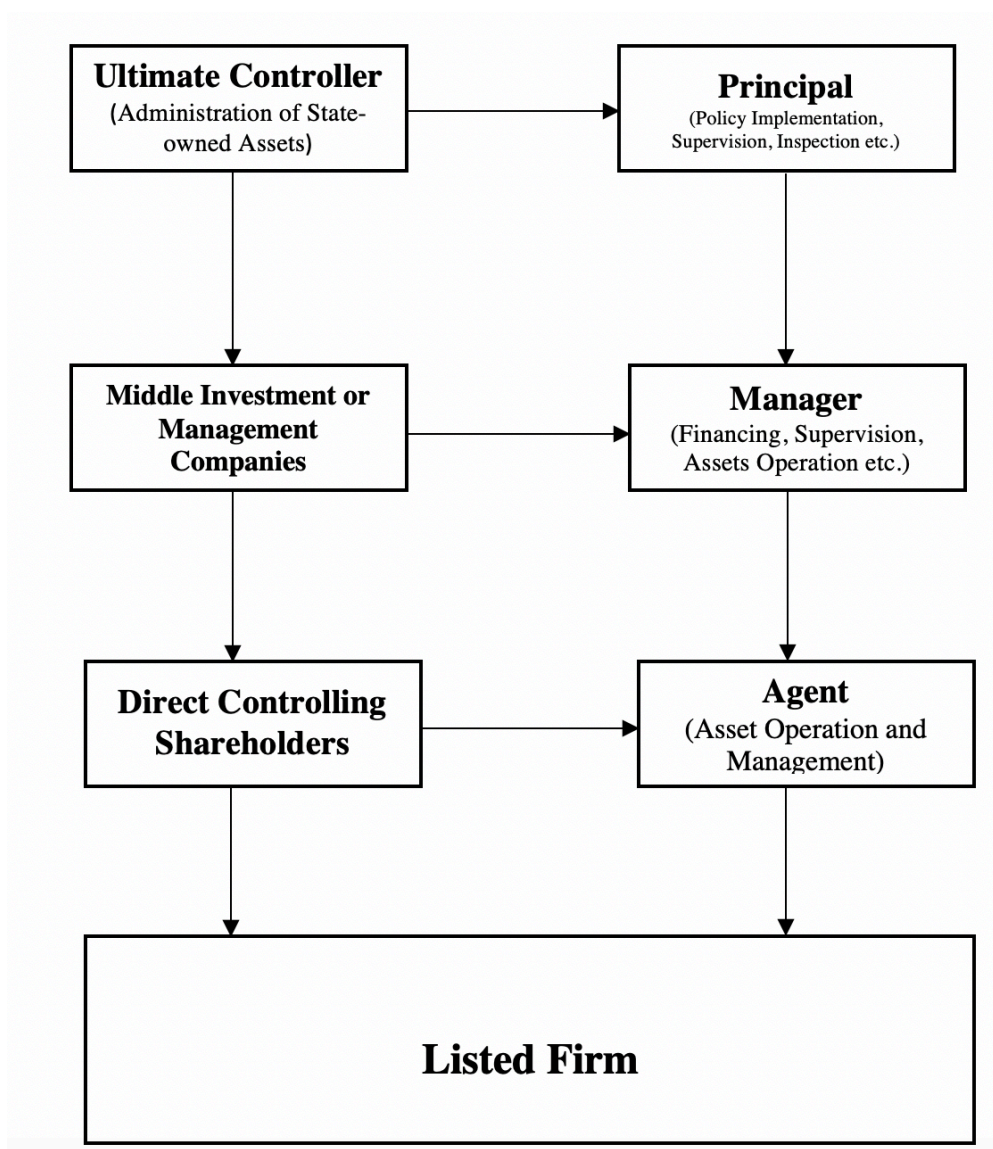


Figure 2.2 Unofficial Ownership Classification and Ultimate Share Owners

This figure shows the comparison between the unofficial ownership classification and the owners of the shares in listed firms in China. In the unofficial ownership classification, the state shares are treated as the state ownership, the legal person shares are treated as legal person/institutional ownership, the tradable A shares are treated as the individual/private ownership. The owner of the state shares is the state, the owners of the legal person shares are the state controlled legal person or the privately controlled legal person, the owners of the tradable A shares are the state, institutions or individuals.

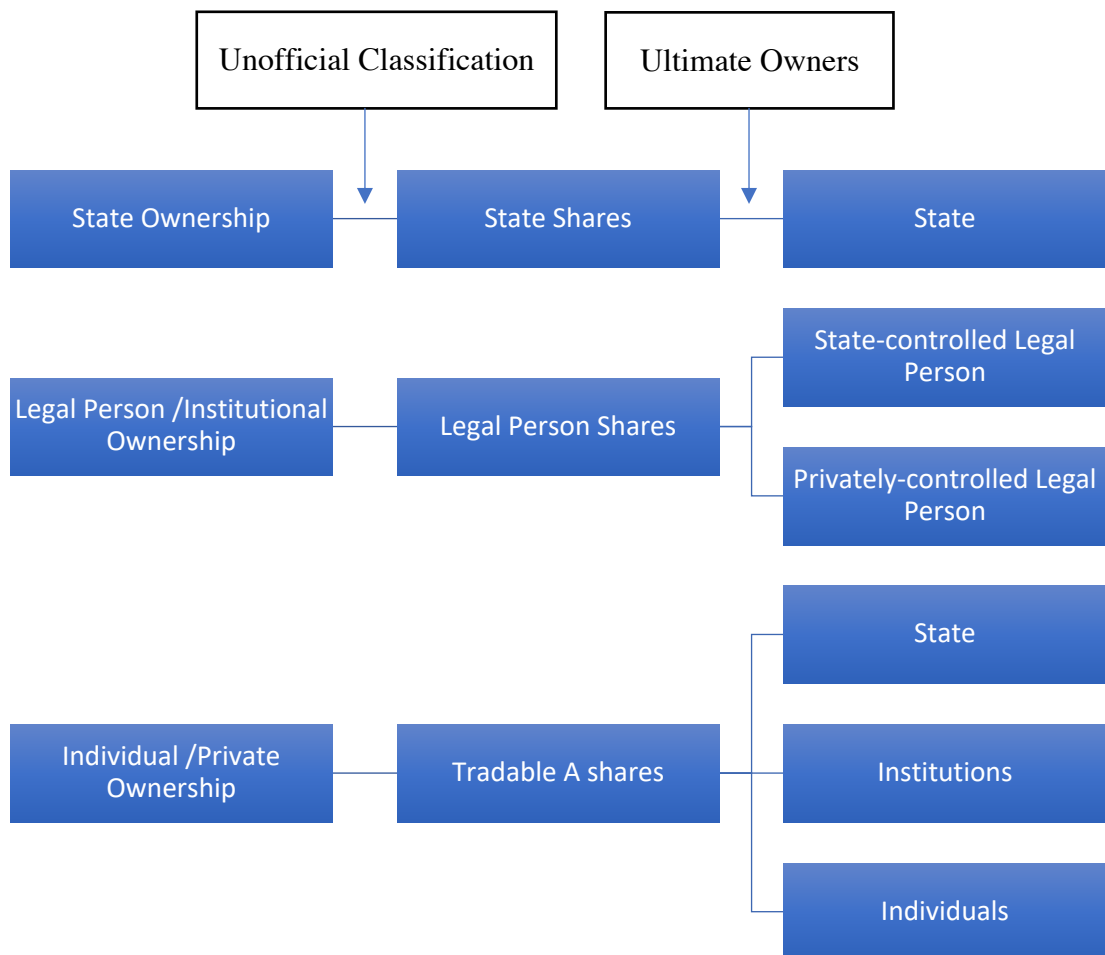


Figure 2.3 Trends of the Four Types of Listed Firms Over Time

This figure displays the trends of State, Private, Foreign and Other type enterprises. The vertical axis shows the proportion of certain types of firms among all the firms in every year; the horizontal axis shows the year. I identify the listed firms with state ultimate controllers as the State firms, those with the private ultimate controllers as the Private firms, those with the foreign ultimate controllers as the Foreign firms, those with other type ultimate controllers as Other firms, and those without ultimate controllers as Widely held firms.

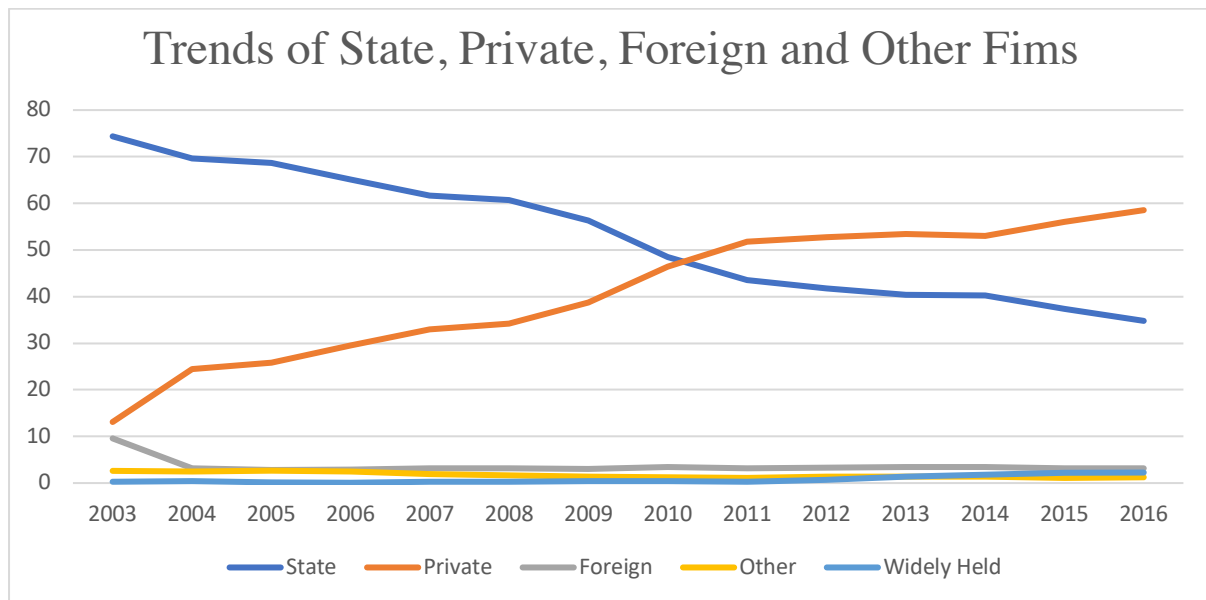
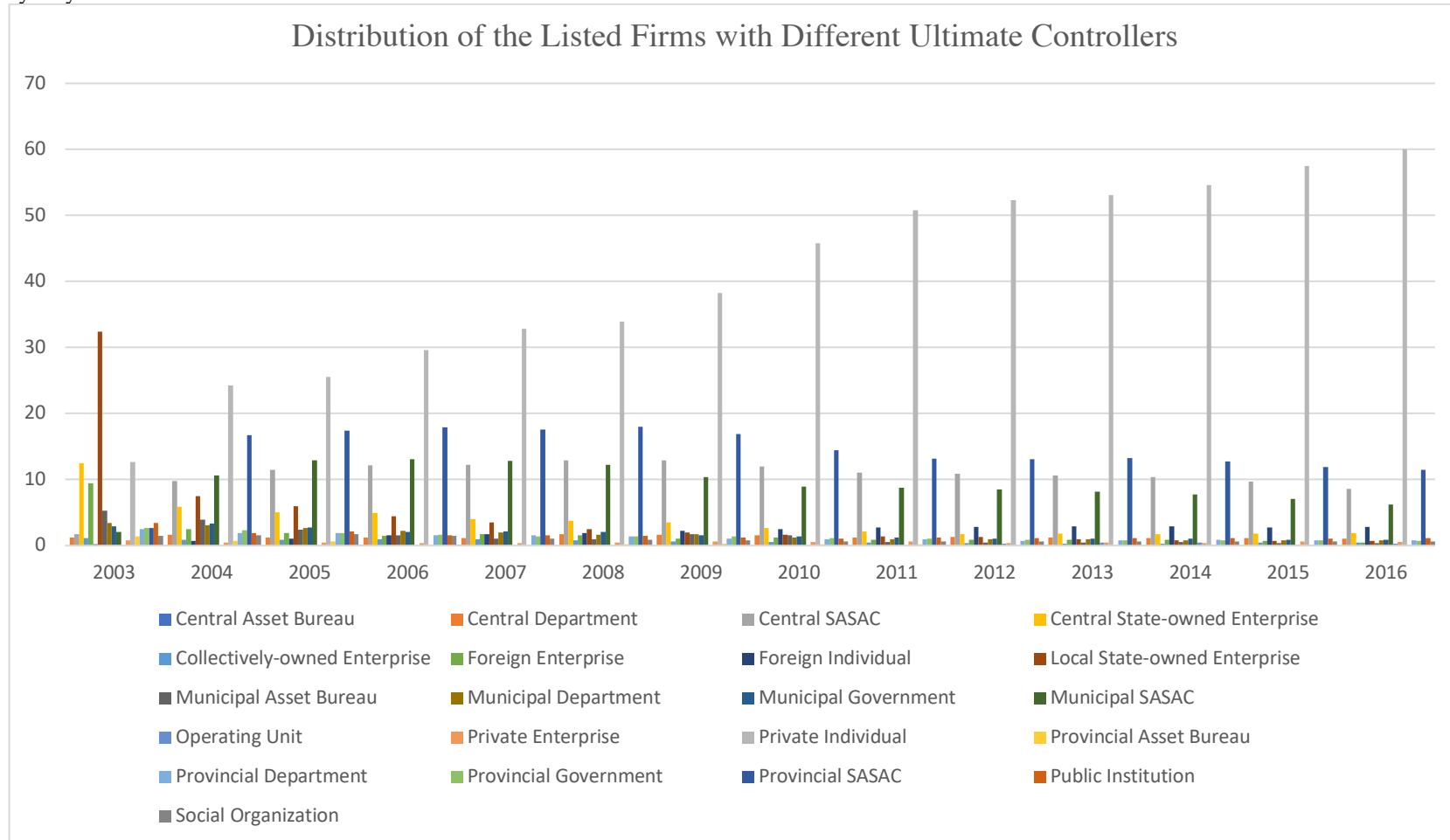


Figure 2.4 Distribution of the Twenty-one Types of Ultimate Controllers of the Listed Firms Over Time

This figure shows the distribution of the listed firms with 21 types of ultimate controllers from 2003 to 2016. The vertical axis shows the proportion of firms with each type of ultimate controllers among all firms in every year; the horizontal axis shows the year; The proportion of the listed firms with each type of ultimate controller is displayed in the figure yearly.



Chapter 3 Direct Controlling Shareholder and Firm Performance in China

3.1 Introduction

The presence of concentrated ownership within business groups helps preserve the power of controlling shareholders and allow the controllers to exercise substantial control over the firm's decisions (La Porta et al., 1999). Research has found that there exists a moderate concentration of ownership in developed countries (Eisenberg, 1976; Demsetz, 1983; Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; Morck, Shleifer and Vishny, 1988). The emergence of concentrated ownership may be due to the shared benefits and private benefits of control. The former is through the decision-making power, as a large shareholder tends to improve the firm value with the growth of concentrated ownership, and the high cash flow is shared with small shareholders. The latter is due to the interest of the large shareholder in using voting rights to consume the firm's resources or profits, which are not shared with the small shareholders. Business groups in emerging markets are the imperfect substitutes for capital, labour and product markets, and thus they have competitive advantages that independent enterprises cannot compete with (Ghemawat and Khanna, 1998; Smelser and Swedborg, 1994; Guill'en, 2000; Khanna and Palepu, 1997). To maximise self-interests, the controllers within the business groups exercise the rights, that benefit from the concentrated ownership, to control enterprise decision-making. This equity concentration leads to large shareholder control. The controlling shareholders usually exist in the firms with concentrated ownership.

The existence of the large shareholders has a two-sided impact on the value and performance of enterprises. The large shareholder will strengthen the supervision for managers and improve firm inefficiency. Large and small shareholders share the benefits of control (Shleifer and

Vishny, 1986). Large shareholders also have the incentive to consume resources or abuse company's profit by using their voting rights which are not shared with small shareholders. They have the control power to appoint managers and executives or manage the firm by themselves (Pagano and Roell, 1998). They have strong incentives and are capable of expropriating from minority shareholders and enjoying private benefits of control. This conflict of interest between controlling and minority shareholders may affect firms' performance, as the controlling shareholders can sacrifice effective projects to maintain private benefits or undertake profitless projects to redirect resources to their own companies (Jiang et al., 2018). The Chinese government also concentrates the ownership of listed firms to maintain control over the large and super-large firms and uses them to implement political missions. The ownership in Chinese listed firms was highly concentrated in 2000, with an average largest shareholding rate of 45% (Jiang and Kim, 2015). The Split Share Reform brought a gradual decline in ownership concentration. The average largest shareholding rate was 43% in 2003, which declined to 40% in 2005, 36% in 2010 (Jiang and Kim, 2015) and 35% in 2015 (Shenzhen CSMAR Data Technology Co., 2017). However, the actual controller of the business group is the parent company/entity rather than the direct controlling shareholder of the firms. The direct controlling shareholders, which refers to the large shareholders, have limited power over the firm's decisions and barely influence firm performance. This raises the question of whether the direct controlling shareholder, namely the largest shareholder, can affect the firm decision and performance outcome. Also, the research about the moderating effects of ownership concentration on the relationship between the direct controlling shareholders and firm performance is insufficient. The lack of evidence about the interaction of these components requires further research.

The previous chapter presents different effects of ultimate controllers on firm performance. To continue the investigation of the relationship between ownership and performance outcome with structural characteristics of business groups, this chapter studies the effect of the direct controlling ownership on firm performance. This chapter contributes to the ownership literature by examining the effects of the largest shareholder within the business group. The previous literature presents the significant impacts of large shareholders, but none of those studies conducts the investigation from the perspective of business groups (Attig, El Ghouli and Guedhami, 2009; Gomes and Novaes, 2006; Jiang et al., 2018). This chapter follows the previous chapter in using the new classification to identify different types of the largest shareholder to study their influence on firm performance. Secondly, the chapter tests the moderating effects of concentrated ownership on the relationship between largest shareholders and firm performance, since the research examining these types of moderating relationships is insufficient. Finally, as a continuation of the previous chapter, this chapter uses not only financial performance but also non-financial performance, such as employment, investments and productivity, to study the effect of the largest shareholder on firm performance.

Following previous chapter, I use the new ownership classification to classify the largest shareholders into sixteen categories. I obtain the ownership and performance data from the Chinese Securities Market and Accounting Research (CSMAR) database. The sample in this chapter includes 3,077 firms, and 27,077 firm-year observations over the period 2003-2016. The firm performance measures in the chapter comprise output, employment, profitability, labour productivity, investment and operating efficiency. I apply firm and year as the fixed effects to conduct regression analysing the effects of largest shareholders on firm performance.

I first study the effects of sixteen types of largest shareholders on firm performance and find that few types of the largest shareholders having an impact on firm performance. This not consistent with previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Liao, Liu and Wang, 2014; Liu, Wang and Zhu, 2021), which finds significant effects of state ownership on firm performance. The previous studies do not investigate the types of direct controlling shareholder, which refers to the largest shareholder in the thesis. In a business group, the direct controlling shareholders have to obey the guidance of ultimate controllers. These direct controlling shareholders cannot decide the development direction and have limited impacts on firm performance. I also estimate the effects of the interaction between the types of direct controlling shareholders and their ownership on firm performance. The results show that the interaction between the types of direct controlling shareholders and their ownership is positively related to firm profitability and operating efficiency. However, the effects of direct controlling ownership are minimal. A 1% increase of the direct controlling ownership only affects less than 1% of firm performance. The largest shareholder has few effects on firm performance, even when their ownership increases. The results urge the external investors to give great importance to the largest shareholder, who cannot decide the development direction of the listed firms and must follow the instruction from the controller.

The rest of the chapter is organised as follows. Section 3.2 is a review of literature about the large shareholder ownership in business groups and firm performances outcome and presents the research question in this chapter. Section 3.3 describes the data and methodology. Section 3.4 presents the empirical analysis and section 3.5 concludes the chapter.

3.2 Literature Review

This section reviews the impacts of the large shareholders and raises the research question of the extent to which the largest shareholders could affect listed firms' performance. Research about the business groups shows that the pyramid structure within the group aims to protect and increase the power of controlling shareholders and puts the minority shareholders in danger of exploitation by controlling shareholders. Bank and Cheffins (2010) discuss that the rarer pyramid structures in business groups are, the more efficient financial markets are. La Porta et al. (1999) study the pyramid structure and show that the diffusion of pyramids within business groups always arise from the presence of concentrated ownership. These pyramids aim to maintain the power of controlling shareholders and allow the controllers to exercise strong control over the firm's decisions, but the actual controller of the business group is the parent company/entity, rather than the direct controlling shareholders of the firms. The direct controlling shareholders, which refers to the large shareholders, have limited power over the firm's decisions and barely influence firm performance.

3.2.1 Equity Concentration and Large Shareholder Control

Berle and Means (1932) discover the dispersion characteristics of equity in U.S. companies in 1932. Since then, research on corporate governance has focused on the agency problems of widely held companies. Scholars have treated the American decentralised equity structure as the default. In recent years, researchers began to question the effectiveness of the framework presented by Berle and Means (1932). Eisenberg (1976), Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986), and Morck, Shleifer and Vishny (1988) show that, even in the largest companies in the United States, there exists a moderate concentration of ownership. Holderness and Sheehan (1988) also find that in the United States there are hundreds of listed

firms with large shareholders holding more than 51% of total shares. Other studies have found that the ownership in developing countries is also highly concentrated (La Porta et al., 1998). The emergence of concentrated ownership can be due to two factors: shared benefits and private benefits of control. Shared benefits of control are from the decision-making power and the wealth effect of important configuration which are accompanied with large ownership. When other conditions are equal, the growth of large shareholder ownership can stimulate the improvement of enterprise value and increased cash flow is shared with small shareholders. Large and small shareholders enjoy the shared benefits of control together. There are several reasons for the existence of shared benefits of control. First, the large shareholders or their representatives are usually the directors or senior managers who decide their dominant position in decision-making. Second, there is evidence to suggest that the formation of equity is related to stock price abnormal earnings growth (Mikkelson and Ruback, 1985). Third, there is also evidence that the trade of large number of shares is related to stock price abnormal earnings growth (Barclay and Holderness, 1992) The changes in stock prices can be explained by the fact that large shareholders affect the increase of the cash flow of shareholders. Large shareholders can also use their voting rights to consume company's resources or profits which are not shared with the small shareholders. This is referred to as the private benefits of control. The benefits may be monetary rewards, such as the extra salary for the individual shareholders or collaborative benefits of the production for the enterprise shareholders. The benefits may also be non-monetary rewards that meet the personal interests and psychological needs, such as sports teams.

Regulations can affect the ownership. A regulated company have shareholders and regulators to supervise the management at the same time. Regulators thus partly replace the shareholders' supervision, so that shared benefits of control in a regulated company are lower than those in a

non-regulated company. As the regulations limit the activities of managers and cause insiders to have less accurate judgment, the private benefits of control rights are also low in regulated companies. Holderness and Kroszner (1999), and Demsetz and Lehn (1985) show that internal ownership in regulated enterprises is relatively low.

Business groups in emerging markets are the imperfect substitutes of capital, labour and product markets, and thus they have competitive advantages that independent enterprises cannot compete with (Ghemawat and Khanna, 1998; Smelser and Swedborg, 1994; Guill'en, 2000; Khanna and Palepu, 1997). To maximise self-interests, the controllers under different ownership structures affect enterprise performance and value by controlling enterprise decision-making. Equity concentration leads to large shareholder control. The controlling shareholders usually exist in the firms with concentrated ownership.

The existence of the large shareholders has an impact on the value and performance of enterprises. The large shareholder strengthens managerial supervision and improves shared benefits of control. Large shareholders also have the incentive to consume resources or abuse company's profit by using their voting rights, which are not shared with small shareholders. They have strong incentives and are capable of expropriating from minority shareholders. Demsetz and Lehn (1985) show that large shareholders invest concentratedly with a lack of diversified portfolio. Large shareholders need to take more risk. In summary, the previous literature indicates that concentrated ownership, which leads to large shareholder control, could either bring benefits for the shareholders (Shleifer and Vishny, 1986) or damage the firm performance (Barclay and Holderness, 1989; Demsetz and Lehn, 1985).

Concentrated ownership may be scattered among several shareholders, leading to multiple large shareholders. Multiple large shareholders coexistence refers to a few shareholders hold a

large proportion of the firms' equity. The coexistence of several major shareholders with a considerable number of shares is common outside the United States (Barca and Becht, 2001). The data from 5,232 European companies shows that 39% have at least two major shareholders holding at least 10% of the voting rights, and 16% of the companies have at least three major shareholders (Faccio and Lang, 2002). Volpin (2002) finds that the value of listed companies in Italy with a voting syndicate is more than those with one large shareholder. Faccio, Lang and Young (2001) compare the dividend distribution policy of listed companies in different countries and find that European companies with multiple large shareholders tend to pay higher dividends. Maury and Pajuste (2005) further examine the importance of the shareholder equity ratio and type. Using data from a set of listed companies in Finland, they find that when the top two shareholders have similar equity and collusive motivation, the emergence of a third largest shareholder has a positive influence on the enterprise value.

There is also empirical research on the effects of multiple large shareholders. Studies (Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009) have showed a positive influence of multiple large shareholders on firm value, implying a reduction of expropriation in the presence of more competitive large shareholders. Jiang et al. (2018) use a sample of 1640 Chinese listed firms and study the investment efficiency of firms with multiple large shareholders and those with a single large shareholder. They find that the existence of multiple large shareholders mitigates agency conflict and information asymmetry in the listed firms and improves the firm's investment efficiency.

The existence of multiple large shareholders could either mitigate or worsen the potential expropriation of minority shareholders. The literature shows that multiple large shareholders either pursue control rights (Bloch and Hege, 2001) or monitor the controlling shareholder

(Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998), decreasing information asymmetry and agency conflict and then increasing firm efficiency. Jiang and Kim (2015) also discuss that China's Corporate Governance Code requires listed firms to have a "reasonably balanced shareholding" structure. The code expresses the government's view that having multiple large shareholders is better than having just one large controlling shareholder. Another trend in the literature shows that multiple large shareholders use controlling power to pursue private benefits (Zwiebel, 1995; Pagano and Roell, 1998; Gomes and Novaes, 2006), which increase information asymmetry and agency conflict that lower investment efficiency. In general, the existence of multiple large shareholders could either increase the firm efficiency or help large shareholders pursue private benefits. However, the literature does not investigate the large shareholder from the perspective of business groups.

3.2.2 Interpretations of the Control Structure of Chinese Listed Firms

The control structure model proposed in the previous chapter demonstrates new understandings about the ownership within the business groups in China. Firstly, the largest shareholders may not be crucial to the operation of listed firms. Secondly, the listed firms with large shareholders holding significant shares could still be widely held. This section provides examples to show the characteristics in modern listed firms of China.

3.2.2.1 Significance of Largest Shareholders

The most common way that the ultimate controllers obtaining the control rights of a business group is pyramid structure. As a hidden entity, the ultimate controllers could be the upper-level firms or the shareholders. For example, Kingdream Public Limited Company (KPLC, stock code: 000852) is a manufacturer of oil drill. Its top ten shareholders are represented in the Table 3.1.

Insert Table 3.1

Jiangnan Petroleum Administration Bureau of China Petro-chemical Group is the largest shareholder of KPLC, with a 75% shareholding. Its business includes oil and gas exploration and development, natural gas, oil and gas by-products processing and marketing etc. The Jiangnan Petroleum Administration Bureau is owned by the Sinopec Group. The Sinopec Group is thus the ultimate controller of KPLC. The control structure is shown in the Figure 3.1. In this case, the ultimate controller (Sinopec Group) is directly related to the largest shareholder (Jiangnan Petroleum Administration Bureau of China Petro-chemical Group). The controller exercises the voting rights of the largest shareholder.

Insert Figure 3.1

Some ultimate controllers exercise the rights of shareholders other than the largest shareholders, however. HUBEI SANXIA NEW BUILDING MATERIALS CO., LTD (SXXC, Stock Code: 600293) is the glass industry and engineering technology research centre in Hubei Province. The top ten shareholders are shown in the Table 3.2. Dangyang State-owned Assets Administration Bureau is the largest shareholder, but the control rights are held by a private individual, Xizhong Xu. The control structure is presented in the Figure 3.2. Xu controls the second largest shareholder, Hainan Zongxuanda Industry Investment Co., Ltd. and owns a part of the third largest shareholder, Dangyang Guozhong'an Investment Co., Ltd.'s voting rights through the pyramid structure. Xu's voting rights exceed that of the largest shareholder Dangyang State-owned Assets Administration Bureau and become the ultimate controller.

Insert Table 3.2, Figure 3.2

The above example shows that the ultimate controller (Xizhong Xu) obtains the control rights through the second and the third largest shareholders. Also, the ultimate controller is a person, while the largest shareholder is a municipal asset management bureau. If one does not trace the ultimate control rights when estimating the effects of shareholders, an improper conclusion may be drawn.

3.2.2.2 Explanation of Widely Held Firms

Some listed firms in China with direct controlling shareholders are still widely held, because there is no dominant entity (person or company) that controls the operation and management of the upper-level companies of the direct controlling shareholders. Lack of controller at the highest levels means that no entity can take sole control the listed firms through multiple levels. In this thesis I redefine the definition of widely held: the listed firm has an ultimate controller only when its upper-level entity has a controller; otherwise, I consider it as widely held. For example, the listed firm YANG GUANG CO., LTD. (Yang Guang, Stock Code: 000608) which engages in real estate, has a direct controlling shareholder, while Reco Shine Pte. Ltd has no ultimate controller. Its top ten shareholders in 2015 are shown in the Table 3.3 and the control structure is presented in the Figure 3.3.

Insert Table 3.3, Figure 3.3

The annual report explains the reason that the listed firm has no ultimate controller. At the upper level of King Apex Global Limited, the shareholders are Anfu Golbal Limited (whose controller is Industrial and Commercial Bank of China Limited) holding 40% of the shares. All Techno Investments Limited (whose controllers are managers) holds 40% of the shares as well, and True Plan Limited (whose controller is a person, Yunfeng Feng) holds 20% of the shares. All of the shareholders have rights to nominate directors of the lower-level companies. In fact,

the directors of Leading Big Limited are Jun Tang, Guoping Li, Yunfeng Feng, Kailong Guo, Qing Xu. Tang and Li are representatives of All Techno Investments Limited; Guo and Xu are representatives of Anfu Golbal Limited; Feng is representative of True Plan Limited. Thus none of the upper-level entities can solely control the operation and nominate the management team of the listed firm YANG GUANG CO., LTD.

Moreover, even though the equity structure of the listed firms is dispersed, the listed firms can still have ultimate controllers. Listed firm CSG Holding Co., Ltd. (CSG, stock code: 000012), which produces and develops glass and ceramics, did not have controlling shareholders in 2010. Its top ten shareholders are presented in Table 3.4.

Insert Table 3.4

Shenzhen International Holding Limited is the largest shareholder. The company was registered in November 1989 in Bermuda. The company is occupied in the transportation, infrastructure and investment in other related projects. Among the top ten shareholders, Shenzhen International Holding Limited and the third largest shareholder Xintongchan Industrial Development (Shenzhen) Co., Ltd. are both controlled by Shenzhen International Holdings. The control structure is shown in Figure 3.4.

Insert Figure 3.4

From Table 3.4 and Figure 3.4, I find that the top five shareholders' share proportion is around 3%. The State-owned Assets Supervision and Administration Bureau of Shenzhen can obtain the control rights through pyramid structure. It controls the parent companies of the largest and third largest shareholders and owns 7.1% of voting rights in the listed firm. Therefore, I cannot determine if a listed firm is widely held or has an ultimate controller through the share

dispersion of the listed firm and need to trace the control chain and analyse the control structure to categorise the firms.

3.2.3 Research Question

The previous literature demonstrates that the concentrated ownership either uses controlling power to pursue private benefits, worsening the agency conflicts (Shleifer and Vishny, 1986; Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998; Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009; Jiang et al., 2018) or mitigates agency conflicts and improves the firm's efficiency (Barclay and Holderness, 1989; Zwiebel, 1995; Pagano and Roell, 1998; Bloch and Hege, 2001; Gomes and Novaes, 2006). However, none of these authors investigate the effects of concentrated ownership on performance outcomes within the perspective of business groups. In the business group, the control rights from concentrated ownership are ultimately exercised by the owner of the group. The controlling shareholder of the listed firm holds the shares on behalf of the ultimate controller and must follow the instructions of the controller, so the direct controlling shareholder cannot control the firm's decision making. This chapter investigates the extent to which the largest shareholder affects firm performance in listed firms in China.

Firstly, the chapter contributes to the ownership literature by examining the effects of the largest shareholder within the business group. None of the previous literature investigates the effects of large shareholders from the perspective of business groups. The chapter follows the previous chapter and uses the new classification to identify different types of the largest shareholder to study their influence on firm performance. Also, the widely-held groups were barely investigated in the literature. The management in the widely-held business groups follows its own interests to build influence and power (Colli and Colpan, 2016). This chapter

also estimates the relationship between largest shareholder in the widely-held firm and their performance. Secondly, the chapter tests the moderating effects of concentrated ownership on the relationship between largest shareholders and firm performance. In Singh and Gaur's (2009) research on Indian firms, they demonstrate that ownership concentration effectively moderates the group affiliation-firm performance relationship. Their study proves that a higher family ownership concentration decreased the negative impact of the group on firm outcomes. However, there is insufficient research on these types of moderating relationships and the lack of evidence about the interaction of these components requires further research. Finally, as per the previous chapter, this chapter uses not only financial performance but also non-financial performance, such as employment, investment and productivity, to study the effect of the largest shareholder on firm performance.

3.2.4 Hypotheses Development

The ultimate controllers obtain control rights through various methods, with the most common one being the pyramid structure. As hidden entities, the ultimate controllers could be upper-level firms or individuals, and may not necessarily be the largest shareholders. Unless the ultimate controller is the upper-level entity of largest shareholders and obtains control rights through the pyramid structure, the ultimate controller is not related to the largest shareholders. In other words, the largest shareholders are not involved in the operation and management of listed firms. Therefore:

H_{2a} The types of largest shareholders have few effects on the firm performance.

When the largest shareholder is, or is related to, the ultimate controller, equity concentration enhances its power. The existence of large shareholders can strengthen the supervision of

managers and improve the shared benefits of control. Shared benefits of control come from decision-making power and the wealth effect of important configurations that are accompanied by large ownership. When other conditions are equal, the growth of large shareholder ownership can stimulate improvement of the enterprise value and high cash flow is shared with small shareholders, so that large and small shareholders jointly enjoy the shared benefits of control. When the largest shareholder is not, or is not related to, the ultimate controller, an increase in the share proportion of the largest shareholder can lead to the existence of multiple large shareholders. The presence of multiple large shareholders can bring supervision and restriction to the controlling shareholders (Winton, 1993; Pagano and Roell, 1998; Bolton and Von Thadden, 1998) and have a positive impact on corporate performance. Therefore:

H_{2b} An increase of shares held by the largest shareholders may improve firm performance.

In most listed firms, if the types of largest shareholders are the same as the types of ultimate controllers and the type is one of the state categories, the ultimate controller is the largest shareholder. For example, when both the largest shareholder and ultimate controller of a listed company are provincial SASAC, the provincial SASAC is the largest shareholder and ultimate controller of the company. In other words, there is no entity between the largest shareholder and ultimate controller, so the ultimate controller directly holds the largest proportion of shares of the listed company. Thus, even though the largest shareholders have no influence on the firm, they also act as ultimate controller and should have the same effects as the controllers.

H_{2c} When the largest shareholder is the ultimate controller, the largest shareholder can affect firm performance.

To sum up, the literature shows that concentrated ownership either has a negative effect (Shleifer and Vishny, 1986; Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998; Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009; Jiang et al., 2018) or a positive impact (Barclay and Holderness, 1989; Zwiebel, 1995; Pagano and Roell, 1998; Bloch and Hege, 2001; Gomes and Novaes, 2006) on firm outcomes. But none of them explains the concentrated ownership within the context of business groups. In the business group, the controlling shareholder of the listed firm holds the shares on behalf of the ultimate controller and must follow the instructions of the controller, so the controlling shareholder cannot control over the firm decisions. This chapter contributes to the ownership literature by following the previous chapter in using the new classification to identify different types of largest shareholder to study their influence on firm performance within business groups. This chapter also estimates the relationship between the largest shareholder in the widely-held firm and their performance. The research that examines moderating effects of ownership concentration on the relationship between controlling shareholders and firm performance is insufficient. This chapter tests these types of moderating relationships to fill the gap. Moreover, as the continuation of the previous chapter, this chapter uses both financial and non-financial performance measures to study the effect of the largest shareholder on firm performance.

3.3 Data and Methodology

This part shows the sample used in this chapter, ownership variables as the independent variables, performance measures as the dependent variable, the control variables and provides summary description of the data set.

3.3.1 Sample

The ownership data in this chapter follows that of previous chapter, which is obtained from the CSMAR database. After deleting the firms in the financial industry, merged or deactivated firms and the firm-year observations of enterprises whose ownership data is missing, the final data set includes 3,077 firms, and 27,077 firm-year observations over the period from 2003 to 2016.

3.3.2 Ownership Classification

I use the ownership classification in the previous chapter to identify the largest shareholder in the listed firms of China. First, I classify the largest shareholders based on their administrative levels: Central, Provincial and Municipal. Then, I classify it according to functions and objectives first into four major categories: State, Foreign, Private and Other. The main question relies on differentiating between the objectives and functions of these shareholders. Accordingly, I further classify state ultimate controllers into six categories: SASAC, Asset Bureau, Government Department, State-owned Enterprises, Government and Public Institution. In addition, I classify the foreign and private shareholders into enterprise and individual, and the other shareholders into Operating Unit, Collectively owned Enterprise and Social Organisation.

Under the new classification, the largest shareholders are divided into 10 state sub-categories based on the administrative level, function and objective: Public Institution, Central Department, Central State-owned Enterprise, Local State-owned Enterprise, Provincial Asset Bureau, Provincial Department, Provincial SASAC, Municipal Asset Bureau, Municipal Department, Municipal SASAC; two foreign categories are Foreign Individual and Foreign

Enterprise; two private categories are Private Individual and Private Enterprise; two Other categories are Operating Unit and Collectively owned Enterprise.

The previous chapter provides evidence that the ultimate controllers can affect the firm performance significantly. The control structure model also implies that in the business group, the control rights from concentrated ownership are ultimately exercised by the owner of the group. The direct controlling shareholder of the listed firm holds the shares on behalf of the ultimate controller and must follow the instructions of the controller. The direct controlling shareholder should thus have no influence over the firm decisions. None of the previous literature (Gomes and Novaes, 2006; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009; Jiang et al., 2018) has shown this. Also, the literature shows the concentrated ownership either has a negative effect (Shleifer and Vishny, 1986; Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998; Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig, El Ghouli and Guedhami, 2009; Jiang et al., 2018) or positive impact (Barclay and Holderness, 1989; Zwiebel, 1995; Pagano and Roell, 1998; Bloch and Hege, 2001; Gomes and Novaes, 2006) on firm outcomes, but they do not distinguish the shareholders. With the new classification, I can study in more detail the incentives of different largest shareholders when they own the majority of the shares.

3.3.3 Ownership Variables

I use dummy variables to represent the types of largest shareholders in the chapter. Firstly, I use sixteen dummy variables identifying the types of largest shareholders to study their effects on firm performance. The dummy variables are:

LS.PublicInstitution equals 1 when the largest shareholder of the listed firm is Public Institution, otherwise 0;

LS.CentralDepartment equals 1 when the largest shareholder of the listed firm is Central Department, otherwise 0;

LS.CentralSOE equals 1 when the largest shareholder of the listed firm is Central State-owned Enterprise, otherwise 0;

LS.LocalSOE equals 1 when the largest shareholder of the listed firm is Local State-owned Enterprise, otherwise 0;

LS.ProvincialAssetBureau equals 1 when the largest shareholder of the listed firm is Provincial Asset Bureau, otherwise 0;

LS.ProvincialDepartment equals 1 when the largest shareholder of the listed firm is Provincial Department, otherwise 0;

LS.ProvincialSASAC equals 1 when the largest shareholder of the listed firm is Provincial SASAC, otherwise 0;

LS.MunicipalAssetBureau equals 1 when the largest shareholder of the listed firm is Municipal Asset Bureau, otherwise 0;

LS.MunicipalDepartment equals 1 when the largest shareholder of the listed firm is Municipal Department, otherwise 0;

LS.MunicipalSASAC equals 1 when the largest shareholder of the listed firm is Municipal SASAC, otherwise 0;

LS.ForeignEnterprise equals 1 when the largest shareholder of the listed firm is Foreign Enterprise, otherwise 0;

LS.ForeignIndividual equals 1 when the largest shareholder of the listed firm is Foreign Individual, otherwise 0;

LS.PrivateEnterprise equals 1 when the largest shareholder of the listed firm is Private Enterprise, otherwise 0;

LS.PrivateIndividual equals 1 when the largest shareholder of the listed firm is Private Individual, otherwise 0;

LS.CollectivelyownedEnterprise equals 1 when the largest shareholder of the listed firm is Collectively owned Enterprise, otherwise 0;

LS.OperatingUnit equals 1 when the largest shareholder of the listed firm is Operating Unit, otherwise 0;

Then, following La Porta, Lopez-de-Silanes and Shleifer (1999), I use the voting right to represent the largest shareholders' ownership. I apply the proportion of shares held by the largest shareholders as the direct controlling ownership. The direct controlling ownership variable, *DirectControllingOwnership*, is the proportion of shares held by the largest shareholders.

Thirdly, I study whether the largest shareholder and ultimate controller are same affects firm performance. I use a dummy variable representing the identity of the largest shareholder and ultimate controller:

UC.LS is dummy variable which equals 1 when the largest shareholder is same as the ultimate controller, otherwise 0.

This chapter aims to investigate the effects of the direct controlling ownership on firm performance. I conduct the investigation from two aspects: the relationship between types of largest shareholder and performance, and the moderating effect of ownership concentration on

the relationship. The next chapter will further examine the effect of ultimate controlling ownership on firm performance.

3.3.4 Firm Performance Variables

Following previous chapter, I include various firm performance measures in this chapter, including firm output, firm employment, firm profitability, firm labour productivity, firm investment and firm operating efficiency. The performance data is obtained from the financial reports of the listed firms.

Following the study of Liao, Liu and Wang (2014), I use the *Logarithm of operating revenue* to measure the firm output and the *Logarithm of the number of employees* to measure firm employment.

Following Sun and Tong (2003) and Liao, Liu and Wang (2014), I adopt ROA as a proxy for profitability. I calculate ROA as *Net profits/ Average total assets*, where *Average total assets = (Total assets of the start of this year + Total assets of the end of this year) / 2*. Following Wei, Xie and Zhang (2005), I calculate Tobin's Q as *(Market value of Equity + Book Value of Debt) / Book value of assets*. Where *Book Value of Debt = Notes Payable + Current Portion of Long-term Debt (Non-current liabilities due within one year) + Long-term Debt*; *Book Value of Asset = Total Asset - Net Intangible Assets - Net Goodwill - Total Liabilities* and use it as another profitability measure.

Following the study of Liao, Liu and Wang (2014), I use *Logarithm of operating revenue per employee* as a proxy for labour productivity and *Logarithm of capital expenditure (measured*

as change in gross property, plant, and equipment plus change in intangible assets) as a proxy for investment.

Furthermore, long-term protection from government leads to the low efficiency in state-owned listed firms. To estimate whether the state largest shareholder decreases firm efficiency, I use ROS to measure operating efficiency by following Sun and Tong (2003). The ROS is calculated as *Operating Profit/Operating Revenue*, where *Operating revenue is the revenue arising from operating business of the company except interest income, net earned premiums, commissions and fees income*.

I adjust all money units for inflation including Capital Expenditure and Operating Revenue based on the Consumer Price Index (CPI 2003 =100). The CPI data is obtained from the National Bureau of Statistics of China. I also winsorize the performance measures at 1% and 99% levels to exclude extremum.

3.3.5 Control Variables

Following previous literature, I control firm level characteristics as follows. The data used to calculate control variables is obtained from the financial reports of listed firms.

Ownership.Director, *Ownership.Supervisor*, *Ownership.Executive*, *Ownership.Management* are four variables measuring the fraction of shares held by the directors, supervisors, executives and management. Following by Demsetz and Villalonga's (2001) study, I use these four variables to control for the effect of managerial ownership.

SSR is a dummy variable to controls for the impact of Split Share Reform on listed firms. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0. Previous literature (Firth, Lin and Zou, 2010; Liao, Liu and Wang, 2014) shows that the Split Share Reform was a significant reform and altered the ownership structure in the listed firms of China, so I use the dummy variable to control for its influence.

Size Following Wei, Xie and Zhang. (2005) and Chen et al. (2011), I control for firm size by using the logarithm of total assets. They discuss that larger firms may have more resources and more market power to improve output and investment. But large state-owned firms also encounter more government intervention and bureaucracy, which are detrimental to firm performance. Therefore, I use the variable to control for the effect of firm size.

Leverage Consistent with Bhagat and Bolton (2008), I compute leverage as (long-term debt + current portion of long-term debt (Non-current Long-term Liability due within one year)) divided by total assets. Gugler, Ivanova and Zechner (2014) discuss that large individual investors may choose more highly leveraged firms to retain control of, or they may choose those with lower leverage to reduce risk and affect firm performance. Leverage is used strategically by controlling shareholders.

Age is the number of years since the firm's establishment. It is believed that as firms age, they become more complex and more mature in their management. The mature management may have impeccable knowledge of how to operate the firm and benefit firm performance, but they may also find personal benefit in the complexity of the aged firm and expropriate minority shareholders. Therefore, firm age may also be an appropriate control variable in the analysis (Chen, 2015).

Crisis is a dummy variable controlling for the impact of the recent financial crisis on listed firms. The global financial crisis in 2007 brought shocks to the Chinese capital market, and the Chinese government then implemented several stimulation policies to recover the economy. I identify the financial crisis period from 2007 to 2010. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0.

3.3.6 Descriptive Statistics

Table 3.5 presents the descriptive statistics and univariate results. This table shows the distribution of listed firms with different controllers and largest shareholders. The descriptive statistics of each performance measure and control variables are presented in the previous chapter, Table 2.4. In this chapter, I compare the types of largest shareholders with different ultimate controllers in the listed firms. The average proportion of shares held by the largest shareholders is also presented in the table. I use the proportion of shares held by the largest shareholders as an indication of the direct controlling ownership in this chapter. There are 1,259 firms and 13,306 firm-year observations having state-type largest shareholders. Also, there are 67 firms and 228 firm-year observations having equal largest shareholders, but as the equal largest shareholders are the same type, they will not affect the estimated results in the chapter. In this thesis, I neither classify the types of second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth shareholders nor combine them in different ways. Instead, I study the second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth or other minority shareholders that are directly or indirectly owned by the state and treat the sum of their ownership as the ultimate controlling ownership in the next empirical chapter. I define the control methods through which the ultimate controllers obtain control rights. There is a method through which the ultimate controllers obtain control rights from the smaller shareholders (second largest and below). The ultimate controllers might obtain the control rights from only the second largest shareholder,

or both of the second and third largest shareholders or other combinations. No matter what the combination is, the sum of the shareholders' ownership is regarded as the ultimate controlling ownership. The next empirical chapter shows that there are 37 firms and 127 firm-year observations, where the ultimate controllers obtain the control rights from various combinations of smaller shareholders.

In Table 3.5, column 2 shows the number of firm-year observations of the listed firms which are controlled by Public Institution and also have one type of the largest shareholders; for example, the value 94 in column 2 means that there are 94 firm-year observations whose largest shareholders are Public Institutions and are also controlled by Public Institutions. The average proportion of shares held by these largest shareholders is 38.046%. Column 3 shows the number of firm-year observations of the listed firms that are controlled by the Central Asset Bureau and also have one type of largest shareholder. There is no listed firm controlled by the Central Department with Public Institutions as their largest shareholders. There are only 3 firm-year observations of listed firms controlled by the Central Department, and their largest shareholders are Local State-owned Enterprises. The results imply that the type of ultimate controller is not necessarily the same as the type of largest shareholder. Similarly, the columns 4 to 23 show the number of firm-year observations of the listed firms that are controlled by other types, from Central Department to Social Organisation, or without ultimate controller. Only a few listed firms have the same type of the ultimate controller and largest shareholder. The distributions of listed firms in Table 3.5 show that the types of largest shareholders are not always same as the types of ultimate controller. For example, the largest shareholders of Public-Institution controlled listed firms are Public Institution, Central SOE, Local SOE, Provincial Department and Private Enterprise. Even though Public Institutions are not the largest

shareholders, they can obtain control rights through pyramid structure, equity transfer and other methods.

Insert Table 3.5

Table 3.6 reports the correlations among the main variables. The results show that most of the largest shareholder dummy variables are negatively correlated to the firm performance variables. The correlation matrix indicates that except for the correlations among the largest shareholder variables, the other correlations are small, suggesting that collinearity is not an issue.

Insert Table 3.6

3.3.7 Methodology

To investigate the effects of direct controlling ownership on firm performance, I use fixed effects for firms and time in all estimations and correct for heteroscedasticity by following Anderson and Reeb (2003), Gugler, Ivanova and Zechner (2014), as the Hausman Test shows that fixed effect is more suitable for the data in this chapter. Firstly, I study the relationship between sixteen types of largest shareholders and firm performance and test hypothesis 2a. The regression equation is described as follows:

3.a

*Performance*_{*i,t*}

$$\begin{aligned}
 &= \alpha + \sum_{n=1}^{16} \beta_n \text{Dummy.LargestShareholder}_{i,t} + \beta_{17} \text{Ownership.Director}_{i,t} \\
 &+ \beta_{18} \text{Ownership.Supervisor}_{i,t} + \beta_{19} \text{Ownership.Executive}_{i,t} \\
 &+ \beta_{20} \text{Ownership.Management}_{i,t} + \beta_{21} \text{SSR}_{i,t} + \beta_{22} \text{Size}_{i,t} + \beta_{23} \text{Leverage}_{i,t} \\
 &+ \beta_{24} \text{Age}_{i,t} + \beta_{25} \text{Crisis}_{i,t} + \gamma_1 \text{StockCode}_{i,t} + \gamma_2 \text{Year}_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

$\sum_{n=1}^{17} \beta_n \text{Dummy.LargestShareholder}_{i,t}$ is the sum of $\beta_1 \text{LS.PublicInstitution}_{i,t}$,
 $\beta_2 \text{LS.CentralDepartment}_{i,t}$, $\beta_3 \text{LS.CentralSOE}_{i,t}$, $\beta_4 \text{LS.LocalSOE}_{i,t}$,
 $\beta_5 \text{LS.ProvincialAssetBureau}_{i,t}$, $\beta_6 \text{LS.ProvincialDepartment}_{i,t}$,
 $\beta_7 \text{LS.ProvincialSASAC}_{i,t}$, $\beta_8 \text{LS.MunicipalAssetBureau}_{i,t}$,
 $\beta_9 \text{LS.MunicipalDepartment}_{i,t}$, $\beta_{10} \text{LS.MunicipalSASAC}_{i,t}$, $\beta_{11} \text{LS.ForeignEnterprise}_{i,t}$,
 $\beta_{12} \text{LS.ForeignIndividual}_{i,t}$, $\beta_{13} \text{LS.PrivateEnterprise}_{i,t}$, $\beta_{14} \text{LS.PrivateIndividual}_{i,t}$,
 $\beta_{15} \text{LS.CollectivelyownedEnterprise}_{i,t}$, $\beta_{16} \text{LS.OperatingUnit}_{i,t}$;

$\text{LS.PublicInstitution}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Public Institution, otherwise 0;

$\text{LS.CentralDepartment}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Central Department, otherwise 0;

$\text{LS.CentralSOE}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Central State-owned Enterprise, otherwise 0;

$\text{LS.LocalSOE}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Local State-owned Enterprise, otherwise 0;

$\text{LS.ProvincialAssetBureau}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Provincial Asset Bureau, otherwise 0;

$\text{LS.ProvincialDepartment}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Provincial Department, otherwise 0;

$\text{LS.ProvincialSASAC}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Provincial SASAC, otherwise 0;

$\text{LS.MunicipalAssetBureau}_{i,t}$ is dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Municipal Asset Bureau, otherwise 0;

LS.MunicipalDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal Department, otherwise 0;

LS.MunicipalSASAC_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal SASAC, otherwise 0;

LS.ForeignEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Enterprise, otherwise 0;

LS.ForeignIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Individual, otherwise 0;

LS.PrivateEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Enterprise, otherwise 0;

LS.PrivateIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Individual, otherwise 0;

LS.CollectivelyownedEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Collectively owned Enterprise, otherwise 0;

LS.OperatingUnit_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Operating Unit, otherwise 0;

Ownership.Director_{i,t} is the control variable controlling for the ownership by director of firm *i* in year *t*;

Ownership.Supervisor_{i,t} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

Ownership.Executive_{i,t} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

Ownership.Management_{i,t} is the control variable controlling for the ownership by management of firm *i* in year *t*;

$SSR_{i,t}$ is a dummy variable to control for the impact of Split Share Reform on firm i in year t . SSR equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

$Size_{i,t}$ is the logarithm of total assets of firm i in year t to control for the impacts of firm size; $Leverage_{i,t}$ is the (long-term debt + current portion of long-term debt) divided by total assets of firm i in year t to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for firm age;

$Crisis_{i,t}$ is a dummy variable that controls for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

Then, I investigate the moderating effects of directing controlling ownership, which are represented by the proportion of shares held by largest shareholders, on the relationship between largest shareholder and firm performance and test the hypothesis 2b. In line with Firth, Lin and Zou (2010), the main effects are interacted together in the equation rather than controlled separately in the equation. The regression is described as follows:

3.b

$Performance_{i,t}$

$$\begin{aligned}
 &= \alpha + \sum_{n=1}^{16} \beta_n (Dummy.LargestShareholder_{i,t} \\
 &\quad * DirectControllingOwnership_{i,t}) + \beta_{17} Ownership.Director_{i,t} \\
 &\quad + \beta_{18} Ownership.Supervisor_{i,t} + \beta_{19} Ownership.Executive_{i,t} \\
 &\quad + \beta_{20} Ownership.Management_{i,t} + \beta_{21} SSR_{i,t} + \beta_{22} Size_{i,t} + \beta_{23} Leverage_{i,t} \\
 &\quad + \beta_{24} Age_{i,t} + \beta_{25} Crisis_{i,t} + \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

$\sum_{n=1}^{17} \beta_n (\text{Dummy.LargestShareholder}_{i,t} * \text{DirectControllingOwnership}_{i,t})$ is the sum of $\beta_1 \text{LS.PublicInstitution}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_2 \text{LS.CentralDepartment}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_3 \text{LS.CentralSOE}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_4 \text{LS.LocalSOE}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_5 \text{LS.ProvincialAssetBureau}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_6 \text{LS.ProvincialDepartment}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_7 \text{LS.ProvincialSASAC}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_8 \text{LS.MunicipalAssetBureau}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_9 \text{LS.MunicipalDepartment}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{10} \text{LS.MunicipalSASAC}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{11} \text{LS.ForeignEnterprise}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{12} \text{LS.ForeignIndividual}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{13} \text{LS.PrivateEnterprise}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{14} \text{LS.PrivateIndividual}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{15} \text{LS.CollectivelyownedEnterprise}_{i,t} * \text{DirectControllingOwnership}_{i,t}$, $\beta_{16} \text{LS.OperatingUnit}_{i,t} * \text{DirectControllingOwnership}_{i,t}$;

$\text{LS.PublicInstitution}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Public Institution, otherwise 0;

$\text{LS.CentralDepartment}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Central Department, otherwise 0;

$\text{LS.CentralSOE}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Central State-owned Enterprise, otherwise 0;

$\text{LS.LocalSOE}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Local State-owned Enterprise, otherwise 0;

LS.ProvincialAssetBureau_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial Asset Bureau, otherwise 0;

LS.ProvincialDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial Department, otherwise 0;

LS.ProvincialSASAC_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial SASAC, otherwise 0;

LS.MunicipalAssetBureau_{i,t} is dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal Asset Bureau, otherwise 0;

LS.MunicipalDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal Department, otherwise 0;

LS.MunicipalSASAC_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal SASAC, otherwise 0;

LS.ForeignEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Enterprise, otherwise 0;

LS.ForeignIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Individual, otherwise 0;

LS.PrivateEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Enterprise, otherwise 0;

LS.PrivateIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Individual, otherwise 0;

LS.CollectivelyownedEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Collectively owned Enterprise, otherwise 0;

LS.OperatingUnit_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Operating Unit, otherwise 0;

*DirectControllingOwnership*_{*i,t*} is the proportion of shares owned by the largest shareholder of the listed firm *i* in year *t*;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of the firm;

*Age*_{*i,t*} is the number of years since the firm *i*'s establishment in year *t* to control for the firm age;

*Crisis*_{*i,t*} is a dummy variable controlling for the impact of the recent financial crisis on listed firm *i* in year *t*. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0;

*StockCode*_{*i,t*} is the fixed effects variable identifying the unique code of firm *i* in year *t*;

*Year*_{*i,t*} is the fixed effects variable identifying the year of firm *i* in year *t*.

I also investigate whether the identity of the largest shareholder and ultimate controller affect firm performance to test hypothesis 2c. Same as previous equation and in line with Firth, Lin

and Zou (2010), the main effects are interacted together in the equation rather than controlled separately in the equation. The regression equation is described as follows:

3.c

*Performance*_{*i,t*}

$$\begin{aligned}
&= \alpha + \sum_{n=1}^{16} \beta_n (\text{Dummy.LargestShareholder}_{i,t} * UC.LS_{i,t}) \\
&+ \beta_{17} \text{Ownership.Director}_{i,t} + \beta_{18} \text{Ownership.Supervisor}_{i,t} \\
&+ \beta_{19} \text{Ownership.Executive}_{i,t} + \beta_{20} \text{Ownership.Management}_{i,t} \\
&+ \beta_{21} \text{SSR}_{i,t} + \beta_{22} \text{Size}_{i,t} + \beta_{23} \text{Leverage}_{i,t} + \beta_{24} \text{Age}_{i,t} + \beta_{25} \text{Crisis}_{i,t} \\
&+ \gamma_1 \text{StockCode}_{i,t} + \gamma_2 \text{Year}_{i,t} + \varepsilon_{i,t}
\end{aligned}$$

Where,

$\sum_{n=1}^{17} \beta_n (\text{Dummy.LargestShareholder}_{i,t} * \text{LargestRate}_{i,t})$ is the sum of
 $\beta_1 \text{LS.PublicInstitution}_{i,t} * UC.LS_{i,t}$, $\beta_2 \text{LS.CentralDepartment}_{i,t} * UC.LS_{i,t}$,
 $\beta_3 \text{LS.CentralSOE}_{i,t} * UC.LS_{i,t}$, $\beta_4 \text{LS.LocalSOE}_{i,t} * UC.LS_{i,t}$,
 $\beta_5 \text{LS.ProvincialAssetBureau}_{i,t} * UC.LS_{i,t}$, $\beta_6 \text{LS.ProvincialDepartment}_{i,t} * UC.LS_{i,t}$,
 $\beta_7 \text{LS.ProvincialSASAC}_{i,t} * UC.LS_{i,t}$, $\beta_8 \text{LS.MunicipalAssetBureau}_{i,t} * UC.LS_{i,t}$,
 $\beta_9 \text{LS.MunicipalDepartment}_{i,t} * UC.LS_{i,t}$, $\beta_{10} \text{LS.MunicipalSASAC}_{i,t} * UC.LS_{i,t}$,
 $\beta_{11} \text{LS.ForeignEnterprise}_{i,t} * UC.LS_{i,t}$, $\beta_{12} \text{LS.ForeignIndividual}_{i,t} * UC.LS_{i,t}$,
 $\beta_{13} \text{LS.PrivateEnterprise}_{i,t} * UC.LS_{i,t}$, $\beta_{14} \text{LS.PrivateIndividual}_{i,t} * UC.LS_{i,t}$,
 $\beta_{15} \text{LS.CollectivelyownedEnterprise}_{i,t} * UC.LS_{i,t}$, $\beta_{16} \text{LS.OperatingUnit}_{i,t} * UC.LS_{i,t}$;
 $\text{LS.PublicInstitution}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Public Institution, otherwise 0;

LS.CentralDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Central Department, otherwise 0;

LS.CentralSOE_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Central State-owned Enterprise, otherwise 0;

LS.LocalSOE_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Local State-owned Enterprise, otherwise 0;

LS.ProvincialAssetBureau_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial Asset Bureau, otherwise 0;

LS.ProvincialDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial Department, otherwise 0;

LS.ProvincialSASAC_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Provincial SASAC, otherwise 0;

LS.MunicipalAssetBureau_{i,t} is dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal Asset Bureau, otherwise 0;

LS.MunicipalDepartment_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal Department, otherwise 0;

LS.MunicipalSASAC_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Municipal SASAC, otherwise 0;

LS.ForeignEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Enterprise, otherwise 0;

LS.ForeignIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Individual, otherwise 0;

LS.PrivateEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Enterprise, otherwise 0;

LS.PrivateIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Individual, otherwise 0;

LS.CollectivelyownedEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Collectively owned Enterprise, otherwise 0;

LS.OperatingUnit_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Operating Unit, otherwise 0;

UC.LS_{i,t} is a dummy variable which equals 1 when the largest shareholder is same as the ultimate controller of the listed firm *i* in year *t*, otherwise 0;

Ownership.Director_{i,t} is the control variable controlling for the ownership by director of firm *i* in year *t*;

Ownership.Supervisor_{i,t} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

Ownership.Executive_{i,t} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

Ownership.Management_{i,t} is the control variable controlling for the ownership by management of firm *i* in year *t*;

SSR_{i,t} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

Size_{i,t} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

Leverage_{i,t} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

Age_{i,t} is the number of years since the firm *i*'s establishment in year *t* to control for the firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

Finally, I investigate the effects of different types of largest shareholders on firm performance in the widely held listed firms. As there are six types of largest shareholders in the widely held listed firms, I employ seven dummy variables to represent the largest shareholder. The regression equation is described as follows:

3.d

$Performance_{i,t}$

$$\begin{aligned}
&= \alpha + \sum_{n=1}^6 \beta_n \text{Dummy.LargestShareholder}_{i,t} + \beta_7 \text{Ownership.Director}_{i,t} \\
&+ \beta_8 \text{Ownership.Supervisor}_{i,t} + \beta_9 \text{Ownership.Executive}_{i,t} \\
&+ \beta_{10} \text{Ownership.Management}_{i,t} + \beta_{11} \text{SSR}_{i,t} + \beta_{12} \text{Size}_{i,t} \\
&+ \beta_{13} \text{Leverage}_{i,t} + \beta_{14} \text{Age}_{i,t} + \beta_{15} \text{Crisis}_{i,t} + \gamma_1 \text{StockCode}_{i,t} + \gamma_2 \text{Year}_{i,t} \\
&+ \varepsilon_{i,t}
\end{aligned}$$

Where,

$\sum_{n=1}^6 \beta_n \text{Dummy.LargestShareholder}_{i,t}$ is the sum of $\alpha_1 \text{LS.CentralSOE}_{i,t}$, $\beta_2 \text{LS.LocalSOE}_{i,t}$, $\beta_3 \text{LS.ForeignEnterprise}_{i,t}$, $\beta_4 \text{LS.PrivateEnterprise}_{i,t}$, $\beta_5 \text{LS.PrivateIndividual}_{i,t}$, $\beta_6 \text{LS.CollectivelyownedEnterprise}_{i,t}$;

$\text{LS.CentralSOE}_{i,t}$ is a dummy variable which equals 1 when the largest shareholder of the listed firm i in year t is Central State-owned Enterprise, otherwise 0;

LS.LocalSOE_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Local State-owned Enterprise, otherwise 0;

LS.ForeignEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Foreign Enterprise, otherwise 0;

LS.PrivateEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Enterprise, otherwise 0;

LS.PrivateIndividual_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Private Individual, otherwise 0;

LS.CollectivelyownedEnterprise_{i,t} is a dummy variable which equals 1 when the largest shareholder of the listed firm *i* in year *t* is Collectively owned Enterprise, otherwise 0;

Ownership.Director_{i,t} is the control variable controlling for the ownership by director of firm *i* in year *t*;

Ownership.Supervisor_{i,t} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

Ownership.Executive_{i,t} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

Ownership.Management_{i,t} is the control variable controlling for the ownership by management of firm *i* in year *t*;

SSR_{i,t} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

Size_{i,t} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

Leverage_{i,t} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for the firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

In sum, the sample used in this chapter is obtained from the CSMAR database and includes 3,077 firms, and 27,077 firm-year observations of the period from 2003 to 2016, after deleting the firms in financial industry, merged or deactivated firms and the firm-year observations if the information of the actual controller is missing. Using the new classification from the previous chapter, I identify the largest shareholder of each listed firm and categorise them based on administrative levels and function. I include both financial and non-financial performance measures in this chapter and the performance data is obtained from annual reports of listed firms. With the new classification, I employ the fixed effects regression to analyse the relationship between direct controlling ownership and firm performance from two major aspects, namely the relationship between the different types of largest shareholders and performance, and the moderating effects of concentrated ownership on the relationship. The results are presented in the next section.

3.4 Empirical Results

This section shows the empirical results of the chapter. Section 3.4.1 shows the regression results of equation 3.a, about the effects of sixteen types of largest shareholders on firm performance. Section 3.4.2 shows the regression results of equation 3.b, about the effects of direct controlling ownership on the relationship between largest shareholders and firm

performance. Section 3.4.3 shows the regression results of equation 3.c, about whether the identity of the largest shareholder and ultimate controller affect firm performance. Section 3.4.4 shows the regression results of equation 3.d, about the effects of different types of largest shareholders on firm performance in the widely held listed firms. Section 3.4.5 employs several additional tests to check the robustness of empirical results. At last, I conclude the empirical findings in the chapter.

3.4.1 Effects of Sixteen Types of Largest Shareholders on Firm Performance

This subsection employs equation 3.a and shows the effects of largest shareholders which are categorized into sixteen types on firm performance. The results are presented in the Table 3.7.

Insert Table 3.7

Column 2 shows results of the effects of the largest shareholders on firm output. The Municipal Asset Bureau or Municipal SASAC as the largest shareholder of the listed firms decreases the firm output by -10.85% or -9.19% respectively. As the output is log transformed, I interpret the coefficient by using the exponentiated value and in terms of percentage change. The results are not consistent with the findings from the previous chapter, which shows that the Central Asset Bureau or Central SASAC as ultimate controllers have positive effects on firm output and the Municipal controllers have no significant effect on firm output. The results are not consistent with Liao, Liu and Wang (2014)'s study, either. They find that the SOEs outperform non-SOEs in terms of increasing output. One possible reason is that the government support to boost output is directed to the ultimate controllers at high levels. Table 3.5 shows that none of the ultimate controllers are at the central level when the largest shareholder of the listed firms is either Municipal Asset Bureau or Municipal SASAC. Without the support from government, the output would be decreased due to a heavy social mission.

Column 3 shows the results for the employment. The Central State-owned Enterprise, Local State-owned Enterprise, Municipal Asset Bureau, Municipal SASAC as largest shareholders can increase the firms' employment by 11.29%, 7.41%, 18.29% and 15.03% respectively. The results are consistent with the previous chapter. The Municipal largest shareholders increase firm employment, as their ultimate controllers are at low administrative levels and must obey the instruction to maintain employment.

Columns 4 and 5 show the results for ROA and Tobin's Q. There are few largest shareholders significantly related to firm profitability, although the Provincial Department as the largest shareholder improves the firms' ROA by 2.5%. This is not consistent with previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021), which presents a negative relationship between state ownership and firm profitability. The ultimate controllers of the listed firms with Provincial Department as the largest shareholder are at Provincial level, and thus they enjoy more flexibility to fulfil the social responsibilities and use juggling strategies and collusions to skimp on or weaken the policy implementation. They are more profit-oriented than other controllers. The Municipal Asset Bureau negatively affects firm ROA. It focuses more on social responsibilities on rather than firm profitability and efficiency, which results in low profitability.

Column 6 presents the results for labour productivity. The Municipal Asset Bureau, Municipal Department or Municipal SASAC as the largest shareholder decreases the labour productivity by -29.56%, -12.41% and -23.99% respectively. As discussed before, the Municipal controllers bear social responsibility and must sacrifice productivity in favour of this. The results for investment in column 7 show that the Central Department as the largest shareholder negatively affects the firm investment. The investment in listed firms at high level is a 'catastrophe' of

fiscal expenditure and the major ‘producer’ of fiscal deficit. The financing capital is used by the state or precipitating in the company's bank account, while little capital is used by the enterprises to improve production and operation, which leads to low investment. Column 8 shows the results for operating efficiency. Only the Provincial Department as the largest shareholder has a positive effect on firms’ ROS. The coefficient 0.147 is significant at 10%. Provincial Departments are more market-oriented but their impacts on firm efficiency are not strongly significant.

Figures 3.5~3.11 present the effects of the types of largest shareholders on firm output, employment, profitability, labour productivity, investment and operating efficiency respectively. The figures show that most of the largest shareholders have no effect on the firm performance. As a matter of fact, the management team of the listed firms may be nominated by its upper-level controllers, so the operation and management of the listed firms are actually controlled by the upper-level entities. The type of the largest shareholder in the listed firm has limited effects on firm performance. This not consistent with previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Liao, Liu and Wang, 2014; Liu, Wang and Zhu, 2021). These studies do not examine the effects of direct controlling shareholders’ types on firm performance. In a business group, the direct controlling shareholders, also refers to the largest shareholders, must follow the instruction of the group’s owner and have few impacts on firm performance.

There are several types of largest shareholders significantly related to firm performance. For example, the municipal asset bureau as largest shareholders have a positive effect on firm employment and a negative effect on labour productivity. The results are significant at 5% level. The distribution of listed firms with different controllers and largest shareholders shown in

Table 3.5 shows that the types of controllers of listed firms with municipal asset bureau as largest shareholders are Local SOE, Provincial Asset Bureau, Provincial SASAC and Municipal state controller. Based on the findings from the previous chapter, these state controllers must obey and serve the national strategy, develop in conformity with legal provisions and act as representatives and pioneers of the times. These enterprises should standardise the employment system and eliminate employment discrimination and inequalities, and absorb unemployment to maintain social stability when necessary. Because of these social responsibilities, state-controlled listed firms care less about firm efficiency than non-state firms. Therefore, the state controllers lead to high employment and low labour productivity. The results show that when the municipal asset bureau becomes the largest shareholders of a listed firm, the firm's employment is improved, but labour productivity is decreased. However, considering the control structure in the Chinese listed firms, the reason the Municipal Asset Bureau becomes the largest shareholder may be that ultimate controllers want it to control the listed firm due to certain restrictions, such as the SASACs not owning capital. They normally use other entities to obtain shares on their behalf, and the Municipal Asset Bureau is a representative of the SASACs. Therefore, the largest shareholders' effects on firm performance are driven by the ultimate controller. These findings are consistent with hypothesis 2a.

In addition, similar to the findings of the previous chapter, the R-squared is relatively low in the results for the performance measures ROA (R-squared is 5%), Tobin's Q (R-squared is 8.8%), ROS (R-squared is 4.1%), compared to the results in previous literature (and Tong, 2003; Wei, Xie and Zhang, 2005; Sun Cao, Pan and Tian, 2011). The reason is that I use more variables than those in the previous literature. The literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Cao, Pan and Tian, 2011) uses four right-hand-side variables on average.

The chapter employs sixteen dummy variables to represent sixteen types of largest shareholders. The large number of variables results in low R-squared.

The R-squared in this chapter is higher when Operating Revenue is used as the dependent variable compared to other alternative dependent variables. The government has set output targets for the large state-owned enterprises and provide support to them. The enterprises perform the output targets and lead to high R-squared. The government does not set other performance targets. The enterprises have diverse objectives and results in low R-squared.

3.4.2 Effects of Interaction between the Direct Controlling Ownership and Largest Shareholder on Firm Performance

This subsection employs equation 3.b and shows the effects of direct controlling ownership on the relationship between largest shareholders and firm performance. The results are presented in Table 3.8.

Insert Table 3.8

Column 2 shows results of the interaction effects of direct controlling ownership and largest shareholder on firm output. When either the Central State-owned Enterprise or Local State-owned Enterprise is the largest shareholder of the listed firm, every 1% increase in the proportion of shares held by them increases the firm's output by 0.189% and 0.087% respectively. When the Municipal Asset Bureau is the largest shareholders of a listed firm, every 1% increase in the proportion of shares held by them decreases the firm output by -0.197%. Even the results are significant at 5% level, a 1% increase in direct controlling ownership only affects the firm output by less than 1%. Therefore, the direct controlling ownership has limited effects on firm output. This provides evidence that the direct controlling

shareholder, which refers to the largest shareholder in this chapter, has limited effects on firm output. The previous literature demonstrates that the concentrated ownership either uses controlling power to pursue private benefits and worsen the agency conflicts (Shleifer and Vishny, 1986; Winton, 1993; Pagano and Roell, 1998; Bolton and Thadden, 1998; Volpin, 2002; Maury and Pajuste, 2005; Laeven and Levine, 2008; Attig et al., 2009; Jiang et al., 2018) or mitigates agency conflict and improves the firm's efficiency (Barclay and Holderness, 1989; Zwiebel, 1995; Pagano and Roell, 1998; Bloch and Hege, 2001; Gomes and Novaes, 2006). This chapter finds that an increase in the proportion of shares held by the largest shareholder leads to the concentration of direct controlling ownership and improves the output of the listed firm, but the effects are limited.

Column 3 shows the results for the employment. When either the Central Department or Provincial SASAC is the largest shareholders of a listed firm, every 1% increase in the proportion of shares held by them decreases the firm employment by -0.895% and -0.671% respectively. When the Municipal Asset Bureau is the largest shareholder of the listed firms, every 1% increase in the proportion of shares held by them increases the firm employment by 0.275%. The effects are also very weak.

Column 4 shows the results for ROA. Most of the interaction between the types of largest shareholders and direct controlling ownership can increase firm ROA. For example, when the Public Institution is the largest shareholder of the listed firms, every 1% increase in the proportion of shares held by them increases firm ROA by 0.0709%. The increase in ROA is very slight and significant at 1% level. Column 5 shows the results for the Tobin's Q. When Local State-owned Enterprise, Provincial Asset Bureau or Provincial SASAC are the largest shareholders of the listed firms, every 1% increase in the proportion of shares held by them

decreases the firm Tobin's Q by -1.69%, -5.23% and -3.37% respectively. The increased ownership of Provincial Asset Bureau or Provincial SASAC as the largest shareholder damages the firm value but very mildly.

Column 6 shows the results for labour productivity. When either Local State-owned Enterprise or Provincial SASAC is the largest shareholder of a listed firm, every 1% increase in the proportion of shares held by them increases the firm labour productivity by 0.131% and 0.662% respectively. When either Municipal Asset Bureau or Municipal SASAC is the largest shareholder of a listed firm, every 1% increase in the proportion of shares held by them decreases the firm labour productivity by -0.485% and -0.486% respectively.

Column 7 shows the results for investment. When Central Department, Provincial SASAC or Municipal SASAC are the largest shareholders of the listed firms, every 1% increase in the proportion of shares held by them decreases the firm investment by -2.74%, -0.735% and -0.534% respectively. Column 8 shows the results for operating efficiency. When a Public Institution, Central Department, Central State-owned Enterprise, Local State-owned Enterprise, Provincial Department or Municipal SASAC is the largest shareholder of a listed firm, every 1% increase in the proportion of shares held by them increases firm operating efficiency by 0.256%, 1.9%, 0.149%, 0.212%, 0.567% and 0.173% respectively. To better present the interaction effects of largest shareholder and direct controlling ownership on firm performance, I use Figures 3.12-3.18 to graphically display the results.

The results in Table 3.8 show that there is positive relationship between most of the interactions between the types of largest shareholders and direct controlling ownership and firm profitability and operating efficiency. There are two reasons that the increase of shares held by

the largest shareholders improve firm performance. Firstly, if the largest shareholder is, or is related to, the ultimate controller, equity concentration enhances the power of the largest shareholder. The existence of large shareholders can strengthen the supervision of managers and improve the shared benefits of control. Shared benefits of control are from the decision-making power and the wealth effect of important configuration, which are accompanied with large ownership. When other conditions are equal, a growth in large shareholder ownership can stimulate an improvement in the enterprise value. The large shareholders, or their representatives, are usually the directors or senior managers which gives them a dominant position in decision-making. As the performance of the firm is related to their benefits, the large shareholders tend to improve the firm value and bring profits to small shareholders. All the shareholders will benefit, and the large shareholders undertake the supervision cost. Shleifer and Vishny (1986) discuss that with equity concentration and large shareholder control, if other things are equal, large shareholder will have greater incentives to improve the value of the enterprise when their ownership grows. In other words, the higher cash flow is shared with small shareholders. Large and small shareholders share the benefits of control.

Secondly, if the largest shareholder is not, or is not related to, the ultimate controller, the increase in share proportion of the largest shareholder can lead to the existence of multiple large shareholders. The presence of multiple large shareholders can bring supervision and restriction to the controlling shareholders (Winton, 1993; Pagano and Roell, 1998; Bolton and Von Thadden, 1998) and have a positive impact on corporate performance. The multiple large shareholders could either mitigate or exacerbate potential expropriation, such as competing for control or monitoring the controlling shareholder, reducing information asymmetry and agency problems and thus increasing firm performance. Volpin (2002), Maury and Pajuste (2005), Laeven and Levine (2008) and Attig, El Ghouli and Guedhami (2009) suggest a reduction of

expropriation of private benefits in the presence of more competing large shareholders. The presence and control size of multiple large shareholders may tend to reduce the cost of equity financing (Attig, Guedhami and Mishra, 2008), enhance information on earnings (Boubaker and Sami, 2011) and increase corporate risk taking (Mishra, 2011) – all of which seem to indicate a mitigated agency problem and a reduction in information asymmetry between the controlling shareholder and minority shareholders. Faccio, Lang and Young (2001) find that the existence of multiple large shareholders increases dividend rates and constrains expropriation in Europe, while reduces the dividend rates and colludes with the largest shareholder to extract private benefits in Asia.

The interaction between most types of largest shareholders and direct controlling ownership is positively related to firm ROA, in that increasing the number of shares held by the largest shareholders slightly improves firm profitability. The increase of firm performance would bring higher management cost which may lower firm value. Also, increasing the largest share proportion means the firm is more profit oriented, and a profit-oriented firms cares less about employment. Therefore, the share proportion of largest shareholders is negatively related to firm value and employment. However, the effects of direct controlling ownership are very limited. A 1% increase of the direct controlling ownership only affects less than 1% of firm performance; therefore, the largest shareholder has few effects on firm performance, even when their ownership increases. The results are in accord with hypothesis 2b.

3.4.3 Effects of the Interaction between the Types of Largest Shareholder and Types of Ultimate Controllers in Listed Firms on Firm Performance

This subsection employs the equation 3.c and investigates whether the identity of the largest shareholder and ultimate controller affects firm performance. The results are presented in Table 3.9.

Insert Table 3.9

Column 2 shows the results of the effects of the interaction between the types of largest shareholders and types of ultimate controllers on firm output. When the ultimate controller and the largest shareholder are both Public Institution, Local State-owned Enterprise, Municipal Asset Bureau or Municipal SASAC, firm output is decreased by -8.774%, -2.266%, -10.74% and -7.59%. The results show that when the largest shareholder is the ultimate controller, since it therefore has the incentives of the ultimate controller, it has the same effects on firm output. The finding is consistent with that of previous estimations. Without support from government, the output of the listed firms owned by low-level controllers is decreased due to heavy social missions.

Column 3 shows the results for employment. When the ultimate controller and the largest shareholder are both Public Institution or Provincial SASAC, the firm employment is decreased by -11.96% and -23.61% respectively. When the ultimate controller and the largest shareholder are both Municipal Asset Bureau, firm employment is increased by 10.74%. The Provincial SASAC tends to abandon redundant employee to improve efficiency, but the Municipal Asset Bureau needs to absorb employment to maintain social stability.

Column 4 shows the results for ROA. When both the ultimate controller and the largest shareholder are both Municipal Asset Bureau, firm ROA is decreased by -1.97%. The Municipal Asset Bureau bears social responsibility which may harm the firm profitability. When the ultimate controller and the largest shareholder are both Provincial Department, firm ROA will be increased by 3.58%. The Provincial Department as the middle-tier managers enjoys more flexibility to fulfil the social responsibilities and has incentives to improve firm profitability. Column 5 shows the results for Tobin's Q. When the ultimate controller and the largest shareholder are both Central Department, Central State-owned Enterprise, Local State-owned Enterprise or Private Individual, firm Tobin's Q is increased by 41.9%, 110.3%, 37.1% and 181.7% respectively. The results imply that when the Central Department, Central State-owned Enterprise, Local State-owned Enterprise or Private Individual directly control the listed firms, they have strong motivations to improve firm value.

Column 6 shows the results for labour productivity. When the ultimate controller and the largest shareholder are both Local State-owned Enterprise, Municipal Asset Bureau or Municipal SASAC, firm labour productivity is decreased by -4.123%, -23.24% and -17.7%. The Local State-owned Enterprise, Municipal Asset Bureau and Municipal SASAC must absorb employees which leads to low labour productivity.

Column 7 shows the results for investment. When the ultimate controller and the largest shareholder are both Central Department, Municipal Asset Bureau or Municipal SASAC, firm investment is decreased by -103.81%, -23.99% and -19.96%. The financing capital of these listed firms is used by the parent company or sitting in the company's bank account. Little capital is used by the enterprises for the production and operation which leads to low investment. When the ultimate controller and the largest shareholder are both Foreign

Enterprise or Operating Unit, firm investment is increased by 32.58% and 53.27%. The Foreign Enterprise could get access to international capital and benefit the firm investment.

Column 8 shows the results for operating efficiency. When the ultimate controller and the largest shareholder are both Central Department or Provincial Department, firm operating efficiency is increased by 35.4% and 22.3% respectively. The departments have strong motivations to improve firm efficiency.

Figures 3.19-3.25 use graphs to show the results from Table 3.9. In most listed firms, if the types of largest shareholders are the same as the types of ultimate controllers, the ultimate controller is the largest shareholder. For example, when the largest shareholder and ultimate controller of a listed company are both Provincial SASAC, the Provincial SASAC is the largest shareholder and ultimate controller of the company. In other words, there is no entity between the largest shareholder and ultimate controller; the ultimate controller directly holds the largest proportion of shares of the listed company, so the largest shareholders act as ultimate controller and should have the same effects as the controllers.

The results in Table 3.9 show that when the state is both largest shareholder and ultimate controller, it has a negative effect on firm profitability, labour productivity and investment. The results are consistent with hypothesis 2c. But when the Central Department, Central SOE or Local SOE are the ultimate controllers and directly own the largest proportion of shares, they can positively increase firm value (Tobin's Q). As the performance of the firm is directly related to their benefits, the ultimate controller as largest shareholders tend to improve firm value and bring benefits to small shareholders. Without direct supervision, the Provincial SASAC focuses on profit rather than policy. This is why the Provincial SASAC has a negative

effect on employment and a positive influence on labour productivity, unlike other state-type controllers.

3.4.4 Effects of Largest Shareholders in Widely held Listed Firms on Firm Performance

This subsection employs equation 3.d and shows the effects of different types of largest shareholders on firm performance in the widely held listed firms. The results are presented in Table 3.10.

Insert Table 3.10

There are six types of largest shareholders in the non-controller listed firms: Central State-owned Enterprise, Local State-owned Enterprise, Foreign Enterprise, Private Enterprise, Private Individual and Collectively-owned Enterprise. Only when the Central SOE is the largest shareholder of the widely held listed firm is the firm investment increased, by 21.53%. This is because Central SOEs have access to state assets for financing and generate capital for investment. No other state-type largest shareholder has any effect on any of the firms' performance in the listed firms without controllers. According to the discussion about widely-held listed firms in the previous part, a lack of high-level controllers means that no entity can control the listed firms solely through multiple levels. In the widely-held listed firms, even the largest shareholders own a significant number of the shares, none of the upper-level entities can individually determine the operations of the listed firms. The largest shareholder represents the union of different upper-level entities. Ownership becomes fragmented, and shareholders do not have obligations and influences on top management, leaving paid managers are responsible for both short-term business activities and long-term decisions. Thus the largest shareholders have barely any effect on the firm performance. In general, the results in the Table 3.10 show that when the state acts as the largest shareholder in the listed firms without controllers, the control rights are scattered among different upper-level entities of largest

shareholders. No entity can solely decide the operation of the listed firms solely, meaning that the state, as the largest shareholder in the listed firms without controllers, has few effect on firm performance.

3.4.5 Robustness Check

This section employs several additional estimations to check the robustness of the findings in the chapter. Firstly, following Wei, Xie and Zhang (2005), Cao, Pan and Tian (2011), Chen et al. (2011), Jiang, Rao and Yue (2015) and Liu, Wang and Zhu (2021), I use alternative performance measures, namely Operating Profit, Net Profit Margin, Operating Profit per Employee, Expense Ratio, to re-examine the effects of the sixteen types of largest shareholders on firm performance. Then, as the Split Share Reform was a crucial reform and altered the ownership in most listed firms, I divided the sample into three sub-groups based on years, namely 2003 to 2005, 2006 to 2009, 2010 to 2016, and re-estimate the relationship between the largest shareholder and firm performance.

3.4.5.1 Alternative Performance Measures

Liao, Liu and Wang (2014) provide various performance measures. Following their study, I apply

Logarithm of operating profit as an alternative measure for firm output;

Net profit margin = Net profit/Operating Revenue as the alternative measure for profitability;

Logarithm of operating profit per employee as the alternative proxy for labour productivity;

and

Expense Ratio, which is the ratio of selling and financial expenses to operating revenue, as alternative measure of operating efficiency.

The results are presented in Table 3.11 and show that the main findings in this chapter are robust, since similar results are presented using alternative performance measures. The Municipal Asset Bureau as the largest shareholder has negative effects on the firm output and labour productivity. The Provincial Department as the largest shareholder has positive effects on firm profitability and operating efficiency. These effects of largest shareholders on firm performance are driven by the ultimate controller. Other types of largest shareholders have few impacts on firm performance.

Insert Table 3.11

3.4.5.2 Sub-Samples Estimation

To check whether the Split Share Reform affects the findings in the chapter, I divide the sample into three groups (2003-2005, 2006-2009, and 2010-2016) and re-run regression 3.a to estimate the effects of largest shareholders on firm performance in the sub-samples. As the sub-samples are divided based on Split Share Reform, I remove the control variable *SSR*. In the sub-sample from 2003 to 2005, financial crisis had not occurred, so I also remove the control variable *Crisis* in the sub-sample from 2003 to 2005. In addition, the Central Department as the largest shareholder does not change over time in the sub-samples, there is no firm with the Foreign Individual as the largest shareholder before 2005, no firm with Operating Unit as the largest shareholder from 2003 to 2009, no firm with the Municipal Department as the largest shareholder after 2010, so I drop the variables *LS.CentralDepartment*, *LS.ForeignIndividual*, *LS.OperatingUnit* and *LS.MunicipalDepartment* in the corresponding sub-samples to avoid collinearity.

The results of sub-sample from 2003 to 2005 are shown in Table 3.12. There are very few largest shareholders that significantly influence firm performance. Since the shares were non-tradable before 2005, the largest shareholders had few incentives to impact firm performance. No matter which type the largest shareholder was, it did not affect firm performance. The results are inconsistent with Wei, Xie and Zhang (2005)'s study. As discussed in previous chapter, even the state controllers had no incentives to affect firm performance when their shares were not tradable, the investors may be convinced that the government is committed to privatisation when state ownership decreases; thus market monitoring becomes effective and firm value increases. The results of the sub-sample from 2006 to 2009 are shown in Table 3.13. During the reform period, the Municipal SASAC as the largest shareholder decreased firm output, profitability and productivity. As the non-tradable shares are transformed into tradable ones, the objectives among ultimate controllers became differentiated. The state must maintain the social mission and drive the largest shareholder, such as the Municipal SASAC, to damage the firm performance. The results of the sub-sample after 2010 are shown in Table 3.14. The Provincial and Municipal level largest shareholders, driven by the state ultimate controllers, have positive effects on firm employment. The Provincial level largest shareholders also enjoy benefits from government support and have the incentive to improve firm profitability and efficiency. The results are inconsistent with Wei, Xie and Zhang's (2005) study, presumably because they do not separate the different types of shareholders in the listed firms and cannot therefore observe the differences in incentives among the shareholders. The three sub-samples show the effects of largest shareholders on firm performance at different stages of share tradability. When the shares were not tradable, the ultimate controllers had no incentive to affect firm performance, which is reflected in the low impact of largest shareholder on firm performance. During and after the reform, however, the objectives of state ultimate controllers

become distinguished. They care about social responsibility, such as employment, and force the largest shareholder to maintain social stability.

Insert Table 3.12, 3.13, 3.14

3.5 Conclusion

To continue the investigation of the relationship between ownership and performance outcomes with structural characteristics of business groups, the chapter studies the effect of the direct controlling ownership on firm performance. Following the previous chapter, I use the new ownership classification to classify the largest shareholders into sixteen categories. I apply firm and year as the fixed effects to conduct regression analysing the effects of largest shareholders on firm financial and non-financial performance. The chapter contributes to the ownership literature by examining the effects of the largest shareholder on firm performance within the business group.

In this chapter, I first study the effects of sixteen types of largest shareholders on firm performance and find that there few largest shareholders have an impact on firm performance. In a business group, the direct controlling shareholders, namely the largest shareholders, cannot decide the development direction and have limited impacts on firm performance. Then, I estimate the effects of the interaction between direct controlling ownership and the types of largest shareholders on firm performance. The results show that there is positive relationship between the interaction of the types of largest shareholders and direct controlling ownership and firm profitability and operating efficiency. The increase of the direct controlling ownership could mitigate the agency problems in the listed firms. However, the effects of direct controlling ownership are very limited. A 1% increase in the direct controlling ownership only

affects less than 1% of firm performance. The largest shareholder has few effects on firm performance, even when their ownership increases.

From the findings of the chapter, I recommend the investors give great importance to the largest shareholders in the Chinese listed firms since the largest shareholders have few impacts on firm performance. The positive effects of the interaction between the types of largest shareholders and direct controlling ownership on firm profitability and operating efficiency could be used by the regulators when they intend to improve firm performance. However, they also need to be aware the improvements are slight.

Tables of Chapter Three

Table 3.1 Top Ten Shareholders of Listed Firm Kingdream Public Limited Company

This table presents the ownership structure of the listed firm Kingdream Public Limited Company in 2005. The first column presents the date of information disclosed. The second column presents the names of the shareholders. The third column presents the shareholding of the shareholders at the end of the information disclosed date. The fourth column presents percentage of the shares held by the shareholders at the end of the information disclosed date. The fifth column presents the rank of the shareholders.

Announcement Date	Shareholder Name	Year-End Shareholding	Holding Percentage (%)	Shareholder Rank
2005-12-31	Jiangnan Petroleum Administration Bureau of China Petro-chemical Group	231000000	75	1
2005-12-31	Bank Of China- ChinaAMC Return Securities Investment Fund	4156645	1.35	2
2005-12-31	Bank of Communications - Guolian Quality Growth Securities Investment Fund	2392859	0.78	3
2005-12-31	Bank of China - ICBC Credit Suisse Core Value Equity Securities Investment Fund	2292911	0.74	4
2005-12-31	Beijing TongHangJi Trade Co., Ltd.	1580000	0.51	5
2005-12-31	Industrial and Commercial Bank of China - Desheng Stable Securities Investment Fund	1486930	0.48	6
2005-12-31	China Construction Bank - ChinaAMC Dividend Mixed Open-end Securities Investment F	1370563	0.44	7
2005-12-31	ChinaAMC Growth Securities Investment Fund	997869	0.32	8
2005-12-31	Bank of China - Xingan Securities Investment Fund	724295	0.24	9
2005-12-31	Huang Dongsheng	498000	0.16	10

Table 3.2 Top Ten Shareholders of Listed Firm HUBEI SANXIA NEW BUILDING MATERIALS CO., LTD

This table presents the top ten shareholders of the listed firm HUBEI SANXIA NEW BUILDING MATERIALS CO., LTD in 2012. The first column presents the date of information disclosed. The second column presents the names of the shareholders. The third column presents the shareholding of the shareholders at the end of the information disclosed date. The fourth column presents percentage of the shares held by the shareholders at the end of the information disclosed date. The fifth column presents the rank of the shareholders.

Announcement Date	Shareholder Name	Year-End Shareholding	Holding Percentage (%)	Shareholder Rank
2012-12-31	Dangyang State-owned Assets Administration Bureau	43670805	12.68	1
2012-12-31	Hainan Zongxuanda Industry Investment Co., Ltd.	42434400	12.32	2
2012-12-31	Dangyang Guozhong'an Investment Co., Ltd.	36899000	10.71	3
2012-12-31	New Times Trust Co., Ltd. - Jierushi Securities Investment Collective Capital Trust Plan	2919554	0.85	4
2012-12-31	Qi Lianqi	1500000	0.44	5
2012-12-31	Yu Weidong	1400000	0.41	6
2012-12-31	Lin Qun	917700	0.27	7
2012-12-31	Hong Chuhong	850000	0.25	8
2012-12-31	Li Xiping	840000	0.24	9
2012-12-31	Huang Youmu	802100	0.23	10

Table 3.3 Top Ten Shareholders of Listed Firm YANG GUANG CO., LTD.

This table presents the top ten shareholders of the listed firm YANG GUANG CO., LTD in 2015. The first column presents the date of information disclosed. The second column presents the names of the shareholders. The third column presents the shareholding of the shareholders at the end of the information disclosed date. The fourth column presents percentage of the shares held by the shareholders at the end of the information disclosed date. The fifth column presents the rank of the shareholders.

Announcement Date	Shareholder Name	Year-End Shareholding	Holding Percentage (%)	Shareholder Rank
2015-12-31	RECO SHINE PTE LTD.	218400000	29.12	1
2015-12-31	Beijing Yanzhao Real Estate Development Co., Ltd.	49593062	6.61	2
2015-12-31	Beijing International Trust Co., Ltd.	36649061	4.89	3
2015-12-31	Xu Ying	7207657	0.96	4
2015-12-31	Chen Feng	4330000	0.58	5
2015-12-31	Sun Shaojun	4032267	0.54	6
2015-12-31	Taikang Life Insurance Co., Ltd. - Dividend - Individual Dividend - 019L - FH002 Shenzhen	3862284	0.52	7
2015-12-31	Xie Wenjiu	3616040	0.48	8
2015-12-31	China Construction Bank Corporation - First State Cinda Transformative Innovation Equity Fund	3360400	0.45	9
2015-12-31	Shang Fei	3067760	0.41	10

Table 3.4 Top Ten Shareholders of Listed Firm CSG Holding Co., Ltd.

This table presents the top ten shareholders of the listed firm CSG Holding Co., Ltd in 2010. The first column presents the date of information disclosed. The second column presents the names of the shareholders. The third column presents the shareholding of the shareholders at the end of the information disclosed date. The fourth column presents percentage of the shares held by the shareholders at the end of the information disclosed date. The fifth column presents the rank of the shareholders.

Announcement Date	Shareholder Name	Year-End Shareholding	Holding Percentage (%)	Shareholder Rank
2010-12-31	Shenzhen International Holdings Limited	76670000	3.69	1
2010-12-31	China North Industries Corp.	75167934	3.62	2
2010-12-31	Xintongchan Industrial Development (Shenzhen) Co., Ltd.	71120000	3.42	3
2010-12-31	Ping An Trust Co., Ltd.	60035000	2.89	4
2010-12-31	China Construction Bank - Yinhua Core Value Selected Equity Securities Investment Fund	58600000	2.82	5
2010-12-31	Industrial and Commercial Bank of China - China Universal Balanced Growth Fund	39360517	1.9	6
2010-12-31	China Construction Bank - Yinhua - Dow Jones China 88 Select Securities Investment Fund	24676086	1.19	7
2010-12-31	GUOTAIJUNAN SECURITIES(HONGKONG) LIMITED	20970946	1.01	8
2010-12-31	China Construction Bank - Manulife Teda Market Capitalization Selected Equity Securities Investment Fund	15000000	0.72	9
2010-12-31	INVESCO FUNDS SERIES 5	14659658	0.71	10

Table 3.5 Distribution of the Listed Firms with Different Types of Largest Shareholders

This table presents the distribution of listed firms with different controllers and largest shareholders. The controllers are Public Institution, Central Asset Bureau, Central Department, Central SASAC, Central SOE, Local SOE, Provincial Asset Bureau, Provincial Department, Provincial Government, Provincial SASAC, Municipal Asset Bureau, Municipal Department, Municipal Government, Municipal SASAC, Private Enterprise, Private Individual, Foreign Enterprise, Foreign Individual, Operating Unit, Collectively-owned Enterprise and Without Controller successively. In every table, Panel A shows the average proportion of shares held by the state largest shareholders, with the number of firm-year observations of listed firms with each state type largest shareholder underneath; Panel B shows the average proportion of shares held by the private largest shareholders, with the number of firm-year observations of listed firms with each private type largest shareholder underneath; Panel C shows the average proportion of shares held by the foreign largest shareholders, with the number of firm-year observations of listed firms with each foreign type largest shareholder underneath; Panel D shows the average proportion of shares held by the other largest shareholders, with the number of firm-year observations of listed firms with each other type largest shareholder underneath. The total number of firm-year observations of listed firms with each type of ultimate controller and the average proportion of shares held by the largest shareholder are presented at the bottom of the table; the total number of firm-year observations of listed firms with each type of largest shareholder and the average proportion of shares held by the largest shareholder are presented at the right side of the table.

	Ultimate Controller Type																						Total Observations
	Public Institution	Central Asset Bureau	Central Department	Central SASAC	Central State-owned Enterprise	Local State-owned Enterprise	Provincial Asset Bureau	Provincial Department	Provincial Government	Provincial SASAC	Municipal Asset Bureau	Municipal Department	Municipal Government	Municipal SASAC	Foreign Enterprise	Foreign Individual	Private Enterprise	Private Individual	Operating Unit	Collectively-owned Enterprise	Social Organisation	Without	
Largest Shareholder Type																							
Panel A: State Type																							
Public Institution	38.049	0	24.644	40.311	40.09	33	0	36.667	0	46.55	0	0	0	0	48.245	0	0	44.185	0	0	0	0	38.558
Central Department	94	0	36	220	39	2	0	16	0	3	0	0	0	0	2	0	0	18	0	0	0	0	430
Central State-owned Enterprise	0	0	25.274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.274
Local State-owned Enterprise	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Provincial Asset Bureau	33.173	0	34.038	45.919	46.531	44.705	0	59.86	50.162	43.351	18.552	44.035	0	40.389	69.316	0	28.722	19.786	17.75	0	0	16.898	44.937
Provincial Department	3	0	92	1520	309	4	1	5	51	10	2	0	0	37	13	0	18	12	1	0	0	6	2084
Provincial Government	29.008	31.89	31.658	40.315	40.155	44.079	43.123	40.988	44.206	43.469	36.231	36.399	38.331	38.769	36.164	29.518	33.904	31.241	31.931	49.193	23.665	15.641	40.394
Municipal Asset Bureau	236	3	135	1052	382	861	56	256	288	3464	193	326	380	2196	56	18	25	276	8	12	20	52	10295
Municipal Department	0	0	0	0	0	0	0	37.44	0	28.65	0	0	0	29.98	0	0	0	0	0	0	0	0	31.926
Municipal Government	0	0	0	0	0	0	7	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	20
Private Enterprise	38.82	0	0	0	0	0	0	28.944	0	47.92	0	0	0	0	0	0	0	0	0	0	0	18.56	33.771
Private Individual	3	0	0	0	0	0	0	9	0	2	0	0	0	0	0	0	0	0	0	0	0	5	14
Foreign Enterprise	0	0	0	27.3	0	52.42	0	0	57.11	33.795	0	0	0	0	0	0	0	0	0	0	0	0	34.426
Foreign Individual	0	0	0	1	0	1	0	3	125	0	0	0	0	0	0	0	0	0	0	0	0	0	130
Operating Unit	0	0	0	0	0	35.553	32.43	0	70.59	32.468	10.05	38.697	24.84	0	0	0	12.68	0	0	0	0	0	31.853
Collectively-owned Enterprise	0	0	0	0	0	8	3	0	0	1	101	1	3	5	0	0	5	0	0	0	0	0	127
Without Controller	0	0	67.8	0	61.7	0	0	0	0	26.15	0	34.863	25.84	63.38	0	0	0	0	0	0	0	0	40.512
Total Observations (Panel A)	0	0	7	0	4	0	0	0	0	4	0	43	3	0	0	0	0	0	0	0	0	0	64
Total Observations (Panel A)	0	0	0	0	0	48.545	0	0	0	29.75	0	17.979	32.965	0	0	0	12.94	0	0	0	0	0	31.79
Total Observations (Panel A)	0	0	0	0	0	2	0	0	0	0	2	0	12	116	0	0	0	1	0	0	0	0	132
Panel B: Private Type																							
Private Enterprise	24.843	0	23.024	25.995	31.818	32.761	24.89	30.744	47.254	31.461	23.566	23.297	26.811	27.531	34.76	34.87	30.576	34.532	25.423	27.316	31.01	16.252	33.858
Private Individual	48	0	36	42	40	67	5	12	33	55	16	14	22	49	204	92	6912	21	64	164	106	8243	
Foreign Enterprise	0	0	0	23.482	28.46	0	0	0	0	0	0	0	0	0	52.99	0	30.781	0	0	0	0	11.995	30.522
Foreign Individual	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	4531	0	0	0	0	61	4603
Panel C: Foreign Type																							
Foreign Enterprise	0	0	0	46.881	32.37	39.866	0	31.85	63.78	35.553	21.739	18	0	31.206	36.957	46.891	49.28	33.681	56.515	0	0	19.666	39.684
Foreign Individual	0	0	0	26	2	5	0	1	7	56	9	0	0	30	96	282	1	128	2	0	37	681	
Operating Unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36.44	0	24.178	0	0	0	0	0	33.812
Without Controller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	9	0	0	0	0	42
Panel D: Other																							
Operating Unit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38.77	0	27.904	0	0	0	31.979
Collectively-owned Enterprise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	8	
Without Controller	0	0	0	37.583	26.715	0	0	0	0	50.768	12.569	11.891	39.491	11.89	52.55	0	36.713	25.34	36.108	37.715	15.65	35.029	
Total Observations (Panel D)	0	0	0	7	4	0	0	0	0	5	8	3	8	4	2	0	0	20	2	85	45	1	194
Total Observations	30.809	32	31.167	43.062	42.254	43.185	40.827	40.03	45.117	42.819	33.009	35.54	37.105	38.147	36.908	40.72	31.246	33.006	28.47	33.589	31.686	15.637	36.852
Total Observations	384	3	316	2877	781	950	74	294	336	3776	339	389	428	2443	373	575	139	11911	39	161	229	263	27077

Table 3.6 Correlation Matrix of Main Variables

This table reports the correlations between the main variables, including the ownership variables, performance variables and control variables.

* Indicates statistical significance at the 10% level.

** Indicates statistical significance at the 5% level.

*** Indicates statistical significance at the 1% level.

Variables	LS.Public Institution	LS.Central Department	LS.Central SOE	LS.Local SOE	LS.Provincial Asset Bureau	LS.Provincial Department	LS.Provincial SASAC	LS.Municipal Asset Bureau	LS.Municipal Department	LS.Municipal SASAC	LS.Private Enterprise	LS.Private Individual	LS.Foreign Enterprise	LS.Foreign Individual	LS.Operating Unit	LS.Collectively owned Enterprise	Direct Controlling Ownership	UC.LS	Operating Revenue	Employees	ROA	
LS.Public Institution	1																					
LS.Central Department	-0.002	1																				
LS.Central SOE	-0.037***	-0.006	1																			
LS.Local SOE	-0.099***	-0.015**	-0.225***	1																		
LS.Provincial Asset Bureau	-0.003	-0.001	-0.008	-0.021***	1																	
LS.Provincial Department	-0.003	0	-0.007	-0.018***	-0.001	1																
LS.Provincial SASAC	-0.009	-0.001	-0.020***	-0.054***	-0.002	-0.002	1															
LS.Municipal Asset Bureau	-0.009	-0.001	-0.020***	-0.054***	-0.002	-0.002	-0.005	1														
LS.Municipal Department	-0.006	-0.001	-0.014**	-0.038***	-0.001	-0.001	-0.003	-0.003	1													
LS.Municipal SASAC	-0.009	-0.001	-0.020***	-0.055***	-0.002	-0.002	-0.005	-0.005	-0.003	1												
LS.Private Enterprise	-0.083***	-0.013**	-0.189***	-0.511***	-0.018***	-0.015**	-0.046***	-0.045***	-0.032***	-0.046***	1											
LS.Private Individual	-0.057***	-0.009	-0.129***	-0.350***	-0.012**	-0.010*	-0.031***	-0.031***	-0.022***	-0.031***	-0.294***	1										
LS.Foreign Enterprise	-0.020***	-0.003	-0.045***	-0.122***	-0.004	-0.004	-0.011*	-0.011*	-0.008	-0.011*	-0.102***	-0.070***	1									
LS.Foreign Individual	-0.005	-0.001	-0.011*	-0.031***	-0.001	-0.001	-0.003	-0.003	-0.002	-0.003	-0.026***	-0.018***	-0.006	1								
LS.Operating Unit	-0.002	0	-0.005	-0.013**	0	0	-0.001	-0.001	-0.001	-0.001	-0.011*	-0.008	-0.003	-0.001	1							
LS.Collectively owned Enterprise	-0.011*	-0.002	-0.024***	-0.066***	-0.002	-0.002	-0.006	-0.006	-0.004	-0.006	-0.056***	-0.038***	-0.013**	-0.003	-0.001	1						
Direct Controlling Ownership	0.014**	-0.014**	0.149***	0.181***	-0.008	-0.004	-0.011*	-0.022***	0.011*	-0.022***	-0.114***	-0.172***	0.039***	-0.008	-0.005	-0.009	1					
UC.LS	-0.007	0.034***	-0.062***	-0.286***	0.007	0.021***	0.117***	0.089***	0.049***	0.104***	-0.352***	0.795***	-0.033***	0.050***	0.015**	0.040***	-0.111***	1				
Operating Revenue	-0.035***	-0.024***	0.178***	0.165***	-0.003	-0.021***	0.033***	-0.029***	-0.005	0.017***	-0.126***	-0.173***	0.009	-0.030***	0.005	-0.003	0.208***	-0.161***	1			
Employees	-0.036***	-0.027***	0.133***	0.158***	0.001	-0.019***	-0.003	0.015**	0.016***	0.026***	-0.124***	-0.150***	0.024***	-0.035***	0.004	0.021***	0.168***	-0.123***	0.705***	1		
ROA	0.008	-0.006	-0.031***	-0.120***	-0.013**	-0.002	0.004	-0.027***	-0.005	-0.013**	0.005	0.171***	0.012**	0.009	0.006	-0.006	0.118***	0.136***	0.103***	0.032***	1	
Tobin's Q	0.027***	0.017***	-0.036***	-0.097***	-0.021***	-0.009	-0.013**	-0.012**	-0.015**	-0.022***	0.053***	0.096***	-0.017**	0.002	0.014**	-0.023***	-0.095***	0.050***	-0.123***	-0.111***	0.021***	
Operating Revenue per Employee	-0.003	0	0.091***	0.037***	-0.005	-0.005	0.049***	-0.060***	-0.046***	-0.01	-0.029***	-0.054***	-0.019***	0.003	0.001	-0.025***	0.087***	-0.070***	0.501***	-0.261***	0.110***	
Capital Expenditure	-0.033***	-0.008	0.151***	0.073***	-0.007	-0.006	0.009	-0.011*	0.034***	0.009	-0.087***	-0.095***	0.015**	-0.012**	-0.005	-0.005	0.136***	-0.089***	0.477***	0.414***	0.041***	
ROI	0.008	-0.004	-0.020***	-0.045***	-0.008	-0.006	-0.011*	-0.007	-0.009	-0.007	0.040***	0.020***	0.028***	-0.005	-0.004	0.01	-0.018***	0.007	-0.011*	-0.024***	0.047***	
ROS	0.009	-0.014**	-0.020***	-0.042***	-0.015**	0.014**	0.004	-0.019***	-0.007	0.001	-0.032***	0.112***	0.001	0.008	0.006	-0.016***	0.121***	0.087***	0.109***	-0.006	0.691***	
Ownership.Director	-0.053***	-0.01	-0.140***	-0.377***	-0.014**	-0.012*	-0.035***	-0.035***	-0.024***	-0.034***	-0.190***	0.853***	-0.012*	0.069***	-0.008	-0.036***	-0.081***	0.675***	-0.188***	-0.164***	0.231***	
Ownership.Supervisor	-0.018***	-0.004	-0.057***	-0.151***	-0.006	-0.005	-0.014**	-0.014**	-0.010*	-0.014**	-0.062***	0.326***	-0.019***	-0.006	-0.003	-0.012*	-0.118***	0.256***	-0.092***	-0.069***	0.122***	
Ownership.Executive	-0.042***	-0.008	-0.110***	-0.297***	-0.011*	-0.009	-0.027***	-0.028***	-0.020***	-0.026***	-0.162***	0.691***	-0.025***	0.065***	-0.007	-0.026***	-0.041***	0.552***	-0.169***	-0.139***	0.205***	
Ownership.Management	-0.052***	-0.010*	-0.141***	-0.380***	-0.014**	-0.012*	-0.035***	-0.035***	-0.025***	-0.033***	-0.187***	0.855***	-0.013**	0.066***	-0.008	-0.035***	-0.093***	0.675***	-0.191***	-0.164***	0.236***	
SSR	0.014**	0.002	0.066***	0.280***	0.002	0.004	0.044***	-0.006	-0.015**	0.039***	0.010*	-0.415***	-0.045***	-0.036***	0.007	0.003	-0.097***	0.192***	0.121***	-0.172***		
Size	-0.042***	-0.017***	0.223***	0.154***	0.002	-0.008	0.029***	-0.020***	0.001	0.028***	-0.150***	-0.171***	0.008	-0.030***	0.004	-0.003	0.227***	-0.157***	0.860***	0.636***	0.035***	
Leverage	-0.043***	-0.009	0.069***	0.114***	0.011*	-0.005	0.009	0.011*	0.020***	0.033***	-0.027***	-0.157***	-0.006	-0.019***	-0.006	-0.026***	0.039***	-0.122***	0.134***	0.049***	-0.164***	
Age	-0.038***	-0.004	-0.029***	0.047***	0.006	-0.007	0.054***	0.003	-0.015**	0.049***	0.063***	-0.140***	0.017***	-0.011*	0.026***	0.009	-0.217***	-0.158***	0.153***	0.036***	-0.115***	
Crisis	0.006	0.002	0.023***	0.061***	-0.009	-0.002	0.005	-0.005	0.014**	0.006	0	-0.094***	0.006	-0.010*	-0.010*	0.009	-0.006	-0.096***	-0.030***	-0.026***	0.051***	

(Continued on next page)

Variables	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROI	ROS	Ownership. Director	Ownership. Supervisor	Ownership. Executive	Ownership.M anagement	SSR	Size	Leverage	Age	Crisis
Tobin's Q	1													
Operating Revenue per Employee	-0.031***	1												
Capital Expenditure	-0.079***	0.142***	1											
ROI	0.030***	0.011	-0.025***	1										
ROS	-0.001	0.160***	0.060***	0.036***	1									
Ownership. Director	0.089***	-0.058***	-0.104***	0.028***	0.153***	1								
Ownership. Supervisor	0.021***	-0.048***	-0.041***	0.012*	0.083***	0.331***	1							
Ownership. Executive	0.085***	-0.061***	-0.085***	0.022***	0.135***	0.799***	0.253***	1						
Ownership. Management	0.089***	-0.062***	-0.105***	0.029***	0.156***	0.995***	0.399***	0.800***	1					
SSR	-0.010*	0.123***	0.063***	0.005	-0.114***	-0.479***	-0.212***	-0.390***	-0.487***	1				
Size	-0.123***	0.410***	0.565***	-0.017**	0.135***	-0.192***	-0.097***	-0.170***	-0.195***	0.173***	1			
Leverage	-0.029***	0.130***	0.212***	-0.019***	-0.051***	-0.180***	-0.079***	-0.149***	-0.183***	0.172***	0.276***	1		
Age	0.105***	0.174***	0.022***	0.046***	-0.074***	-0.180***	-0.113***	-0.148***	-0.185***	0.386***	0.171***	0.110***	1	
Crisis	0.079***	-0.009	0.002	0.002	0.007	-0.081***	-0.002	-0.061***	-0.081***	0.220***	-0.086***	0.030***	-0.144***	1

Table 3.7 Regression Results of the Effects of Sixteen Types of Largest Shareholders on Firm Performance

This table employs equation 3.a (See the detailed interpretation of variables in the methodology, section 3.3) to test hypothesis 2a and presents the regression results about the effect of sixteen types of largest shareholders on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of sixteen dummy variables, with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution</i>	-0.0288 (0.0518)	0.0693 (0.0574)	-0.00523 (0.00987)	-0.595 (0.71)	-0.0794 (0.0737)	0.0818 (0.0873)	0.0321 (0.0353)
<i>LS.CentralDepartment</i>	0.0214 (0.111)	-0.0947 (0.138)	0.0306 (0.035)	-0.252 (0.643)	0.133 (0.253)	-0.614*** (0.0834)	0.352 (0.218)
<i>LS.CentralSOE</i>	0.0362 (0.0353)	0.107** (0.0454)	-0.0127 (0.00833)	-0.584 (0.633)	-0.0567 (0.0461)	0.103 (0.0805)	-0.0102 (0.0299)
<i>LS.LocalSOE</i>	0.0127 (0.025)	0.0715** (0.0349)	-0.00805 (0.00697)	-0.878 (0.569)	-0.0437 (0.0355)	0.0684 (0.0704)	0.0105 (0.0266)
<i>LS.ProvincialAssetBureau</i>	-0.00408 (0.0431)	0.0929 (0.0872)	-0.0154 (0.018)	-2.414** (1.171)	-0.0834 (0.0882)	0.0129 (0.326)	-0.0668 (0.0813)
<i>LS.ProvincialDepartment</i>	-0.0669 (0.153)	0.0748 (0.0761)	0.0250** (0.0121)	-2.477 (1.51)	-0.126 (0.14)	0.0225 (0.221)	0.147* (0.0757)
<i>LS.ProvincialSASAC</i>	-0.0158 (0.0438)	-0.135 (0.121)	0.00217 (0.0126)	-1.413* (0.812)	0.134 (0.111)	-0.131 (0.152)	-0.0267 (0.0508)
<i>LS.MunicipalAssetBureau</i>	-0.103** (0.0438)	0.168** (0.0654)	-0.0216* (0.0113)	-0.643 (0.899)	-0.259*** (0.0679)	-0.121 (0.124)	-0.0473 (0.0536)
<i>LS.MunicipalDepartment</i>	-0.0615 (0.0864)	0.0364 (0.0748)	-0.00189 (0.012)	0.426 (1.388)	-0.117** (0.0573)	-0.0438 (0.115)	-0.0144 (0.0788)
<i>LS.MunicipalSASAC</i>	-0.0879** (0.0431)	0.140* (0.0739)	-0.0141 (0.0109)	-0.848 (0.632)	-0.215*** (0.0764)	-0.149 (0.0946)	-0.0183 (0.0397)
<i>LS.ForeignEnterprise</i>	0.05 (0.0443)	0.108* (0.0595)	-0.00798 (0.00902)	-3.000*** (0.95)	-0.036 (0.0605)	0.266** (0.106)	0.0131 (0.0345)
<i>LS.ForeignIndividual</i>	-0.0195 (0.0692)	0.109*** (0.0378)	-0.0417** (0.018)	1.983 (3.724)	-0.120* (0.0713)	0.780*** (0.125)	-0.0379 (0.0328)
<i>LS.PrivateEnterprise</i>	-0.00755 (0.0238)	-0.00833 (0.0326)	0.00788 (0.00658)	-0.564 (0.56)	0.0216 (0.0329)	0.105 (0.0641)	0.0507** (0.0256)
<i>LS.PrivateIndividual</i>	0.0319 (0.028)	0.00973 (0.0354)	0.0139* (0.00742)	1.133* (0.632)	0.0205 (0.0369)	0.156** (0.072)	0.0641** (0.028)
<i>LS.CollectivelyownedEnterprise</i>	0.0311 (0.0444)	0.158** (0.0785)	-0.000458 (0.0103)	-0.992 (0.762)	-0.105 (0.0644)	0.227 (0.163)	-0.0414 (0.0473)
<i>LS.OperatingUnit</i>	0.108*** (0.0337)	0.102 (0.238)	0.0709 (0.0501)	7.517 (5.797)	0.230*** (0.0368)	0.566*** (0.0709)	0.202 (0.168)

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Control Variables							
<i>Ownership.Director</i>	0.192 (0.172)	0.0407 (0.185)	-0.108*** (0.0392)	-5.79 (4.455)	0.0151 (0.189)	0.242 (0.363)	-0.303*** (0.0965)
<i>Ownership.Supervisor</i>	0.128 (0.335)	-0.453 (0.341)	-0.00874 (0.0848)	-12.30** (5.106)	0.181 (0.352)	0.847* (0.469)	-0.0218 (0.158)
<i>Ownership.Executive</i>	-0.00129 (0.0332)	-0.0563 (0.0346)	0.0570*** (0.0104)	-2.377*** (0.818)	0.0485 (0.0413)	0.0626 (0.0807)	0.115*** (0.0329)
<i>Ownership.Management</i>	-0.179 (0.17)	-0.0375 (0.189)	0.169*** (0.039)	2.237 (4.303)	0.0228 (0.191)	0.337 (0.346)	0.480*** (0.0906)
SSR	0.0704*** (0.00602)	0.00509 (0.00729)	-0.000129 (0.00165)	-1.304*** (0.102)	0.0653*** (0.00846)	0.00418 (0.0156)	-0.00549 (0.00578)
Size	0.860*** (0.0176)	0.587*** (0.021)	0.00997*** (0.00287)	-0.579** (0.269)	0.277*** (0.0231)	1.085*** (0.0295)	0.110*** (0.0113)
Leverage	-0.224** (0.101)	-0.118** (0.0586)	-0.0621*** (0.00865)	0.835 (0.737)	-0.0961* (0.0563)	0.109 (0.0998)	-0.134*** (0.044)
Age	0.000872 (0.00119)	-0.00866*** (0.00161)	-0.00104*** (0.000257)	0.346*** (0.0222)	0.00902*** (0.00165)	-0.0334*** (0.00245)	-0.00704*** (0.000935)
Crisis	0.0126*** (0.00324)	-0.0173*** (0.00442)	0.0123*** (0.000959)	2.018*** (0.077)	0.0295*** (0.00486)	-0.0145 (0.009)	0.0199*** (0.00322)
Constant	0.974*** (0.153)	-2.192*** (0.186)	-0.0471* (0.0254)	6.042** (2.354)	3.114*** (0.206)	-1.997*** (0.267)	-0.918*** (0.0985)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.721	0.37	0.05	0.088	0.211	0.288	0.041

Table 3.8 Regression Results of the Effects of Interaction between Direct Controlling Ownership and Largest Shareholders on Firm Performance

This table employs equation 3.b (See the detailed interpretation of variables in the methodology, section 3.3) to test hypothesis 2b and presents the regression results about the interaction between direct controlling ownership and sixteen types of largest shareholders on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of the interaction between sixteen dummy variables and direct controlling ownership with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types X Direct Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution X Direct Controlling Ownership</i>	-0.000703 (0.001)	-0.000874 (0.001)	0.000709*** (0.000)	-0.0127 (0.012)	0.000213 (0.002)	5.03E-05 (0.002)	0.00256*** (0.001)
<i>LS.CentralDepartment X Direct Controlling Ownership</i>	0.00236 (0.004)	-0.00891* (0.005)	0.00272** (0.001)	-0.0743 (0.106)	0.0114 (0.009)	-0.0270*** (0.002)	0.0190*** (0.007)
<i>LS.CentralSOE X Direct Controlling Ownership</i>	0.00189*** (0.001)	0.000918 (0.001)	0.000429*** (0.000)	-0.0097 (0.009)	0.000967 (0.001)	0.000676 (0.001)	0.00149*** (0.000)
<i>LS.LocalSOE X Direct Controlling Ownership</i>	0.000872** (0.000)	-0.000473 (0.001)	0.000605*** (0.000)	-0.0169*** (0.006)	0.00131* (0.001)	-3.22E-05 (0.001)	0.00212*** (0.000)
<i>LS.ProvincialAssetBureau X Direct Controlling Ownership</i>	0.000479 (0.001)	0.000403 (0.003)	0.00039 (0.000)	-0.0523* (0.031)	-1.63E-05 (0.003)	-9.46E-05 (0.008)	-0.000118 (0.002)
<i>LS.ProvincialDepartment X Direct Controlling Ownership</i>	-0.000716 (0.004)	-0.000593 (0.002)	0.00163*** (0.000)	-0.0632 (0.043)	-0.000154 (0.004)	-0.00254 (0.006)	0.00567** (0.002)
<i>LS.ProvincialSASAC X Direct Controlling Ownership</i>	-3.52E-05 (0.001)	-0.00669* (0.004)	0.000954*** (0.000)	-0.0337* (0.017)	0.00660* (0.004)	-0.00732* (0.004)	0.000747 (0.002)
<i>LS.MunicipalAssetBureau X Direct Controlling Ownership</i>	-0.00197** (0.001)	0.00275* (0.002)	0.000359 (0.000)	0.00832 (0.017)	-0.00484** (0.002)	-0.00467* (0.003)	0.000645 (0.001)
<i>LS.MunicipalDepartment X Direct Controlling Ownership</i>	0.000453 (0.002)	-4.81E-05 (0.002)	0.000949*** (0.000)	0.0366 (0.037)	-0.000641 (0.002)	-0.00127 (0.003)	0.00227 (0.002)
<i>LS.MunicipalSASAC X Direct Controlling Ownership</i>	-0.00153 (0.001)	0.00321 (0.002)	0.000445* (0.000)	-0.011 (0.011)	-0.00485* (0.003)	-0.00533*** (0.002)	0.00173** (0.001)
<i>LS.ForeignEnterprise X Direct Controlling Ownership</i>	0.00232** (0.001)	0.00141 (0.001)	0.000551*** (0.000)	-0.0841*** (0.021)	0.00107 (0.001)	0.00564** (0.002)	0.00185*** (0.001)
<i>LS.ForeignIndividual X Direct Controlling Ownership</i>	0.00227 (0.003)	-0.000156 (0.002)	0.000973 (0.001)	-0.0595 (0.103)	0.00224 (0.004)	0.0151 (0.010)	0.00263*** (0.001)
<i>LS.PrivateEnterprise X Direct Controlling Ownership</i>	0.000865* (0.000)	-0.00220*** (0.001)	0.00107*** (0.000)	-0.0151** (0.007)	0.00315*** (0.001)	0.00173 (0.001)	0.00361*** (0.000)
<i>LS.PrivateIndividual X Direct Controlling Ownership</i>	0.00410*** (0.001)	-0.000566 (0.001)	0.00168*** (0.000)	-0.0361** (0.018)	0.00436*** (0.001)	0.00449 (0.003)	0.00436*** (0.001)
<i>LS.CollectivelyownedEnterprise X Direct Controlling Ownership</i>	0.00176 (0.001)	0.00314 (0.002)	0.000760*** (0.000)	-0.0146 (0.016)	-0.00136 (0.002)	0.00677 (0.004)	0.00101 (0.001)
<i>LS.OperatingUnit X Direct Controlling Ownership</i>	0.00380*** (0.001)	0.00875 (0.006)	0.00164 (0.001)	0.311*** (0.045)	0.0221*** (0.002)	0.0140*** (0.003)	0.00371 (0.004)

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Control Variables							
<i>Ownership.Director</i>	0.123 (0.177)	0.0301 (0.187)	-0.128*** (0.041)	-3.739 (4.431)	-0.0512 (0.195)	0.207 (0.364)	-0.342*** (0.095)
<i>Ownership.Supervisor</i>	0.156 (0.342)	-0.398 (0.347)	-0.00429 (0.090)	-13.92*** (5.301)	0.162 (0.362)	0.858* (0.473)	-0.0336 (0.152)
<i>Ownership.Executive</i>	-0.0246 (0.033)	-0.0529 (0.034)	0.0486*** (0.011)	-2.109** (0.840)	0.0234 (0.041)	0.0371 (0.082)	0.0920*** (0.034)
<i>Ownership.Management</i>	-0.193 (0.175)	-0.053 (0.190)	0.167*** (0.041)	2.338 (4.335)	0.0269 (0.196)	0.31 (0.344)	0.480*** (0.089)
<i>SSR</i>	0.0715*** (0.006)	0.00503 (0.008)	0.00124 (0.002)	-1.342*** (0.103)	0.0667*** (0.009)	0.00391 (0.016)	-0.000911 (0.006)
<i>Size</i>	0.857*** (0.018)	0.595*** (0.020)	0.00615** (0.003)	-0.533* (0.274)	0.265*** (0.023)	1.082*** (0.029)	0.0978*** (0.011)
<i>Leverage</i>	-0.229** (0.102)	-0.115** (0.055)	-0.0665*** (0.009)	0.87 (0.746)	-0.104* (0.060)	0.108 (0.099)	-0.144*** (0.048)
<i>Age</i>	0.00155 (0.001)	-0.00995*** (0.002)	-0.000319 (0.000)	0.341*** (0.023)	0.0109*** (0.002)	-0.0329*** (0.003)	-0.00475*** (0.001)
<i>Crisis</i>	0.0127*** (0.003)	-0.0170*** (0.005)	0.0125*** (0.001)	2.005*** (0.078)	0.0294*** (0.005)	-0.0160* (0.009)	0.0207*** (0.003)
Constant	0.964*** (0.152)	-2.180*** (0.181)	-0.0515** (0.025)	5.778** (2.336)	3.110*** (0.203)	-1.918*** (0.261)	-0.907*** (0.097)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.723	0.372	0.066	0.089	0.216	0.288	0.057

Table 3.9 Regression Results of the Effects of Interaction between the Types of Largest Shareholders and Types of Ultimate Controllers on Firm Performance

This table employs equation 3.c (See the detailed interpretation of variables in the methodology, section 3.3) to test hypothesis 2c and presents the regression results about the interaction between the types of largest shareholders and types of ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of the interaction between sixteen dummy variables and the dummy variable indicating the types of largest shareholders and ultimate controller are the same, with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types X Dummy Variable UC.LS	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution X UC.LS</i>	-0.0841** (0.041)	-0.113** (0.052)	-0.00543 (0.010)	-0.902* (0.538)	0.0285 (0.058)	-0.01 (0.068)	-0.00809 (0.032)
<i>LS.CentralDepartment X UC.LS</i>	-0.00725 (0.114)	-0.182 (0.119)	0.0413 (0.032)	0.419*** (0.112)	0.176 (0.241)	-0.712*** (0.041)	0.354* (0.209)
<i>LS.CentralSOE X UC.LS</i>	0.02 (0.031)	-0.0171 (0.034)	0.00277 (0.005)	1.103*** (0.296)	0.0391 (0.034)	0.0048 (0.053)	-0.00356 (0.015)
<i>LS.LocalSOE X UC.LS</i>	-0.0224* (0.012)	0.0156 (0.015)	-0.00094 (0.003)	0.371** (0.162)	-0.0404** (0.017)	-0.0482 (0.030)	0.012 (0.010)
<i>LS.ProvincialAssetBureau X UC.LS</i>	0.0685 (0.076)	-0.00262 (0.095)	-0.0265 (0.033)	0.122 (0.614)	0.0682 (0.136)	0.189 (0.201)	-0.356 (0.268)
<i>LS.ProvincialDepartment X UC.LS</i>	-0.0945 (0.240)	0.0645 (0.043)	0.0358*** (0.013)	-0.677 (1.078)	-0.158 (0.195)	-0.0197 (0.335)	0.223** (0.098)
<i>LS.ProvincialSASAC X UC.LS</i>	0.00336 (0.030)	-0.212* (0.118)	0.0109 (0.011)	-0.05 (0.413)	0.215** (0.105)	-0.145 (0.130)	-0.0281 (0.031)
<i>LS.MunicipalAssetBureau X UC.LS</i>	-0.102*** (0.035)	0.102* (0.058)	-0.0197** (0.009)	0.344 (0.848)	-0.209*** (0.064)	-0.215** (0.108)	-0.0435 (0.033)
<i>LS.MunicipalDepartment X UC.LS</i>	-0.0444 (0.099)	-0.0439 (0.069)	0.00429 (0.014)	1.464 (1.550)	-0.0462 (0.047)	-0.159 (0.112)	-0.0379 (0.093)
<i>LS.MunicipalSASAC X UC.LS</i>	-0.0732** (0.035)	0.0873 (0.069)	-0.00622 (0.009)	-0.0273 (0.288)	-0.163** (0.071)	-0.182*** (0.070)	-0.026 (0.028)
<i>LS.ForeignEnterprise X UC.LS</i>	0.0861 (0.057)	0.134 (0.083)	-0.00735 (0.012)	-1.612** (0.748)	-0.0456 (0.079)	0.282* (0.145)	-0.0106 (0.039)
<i>LS.ForeignIndividual X UC.LS</i>	0.0838*** (0.018)	0.187*** (0.030)	0.0206*** (0.004)	-0.421 (0.282)	-0.0854*** (0.024)	-0.132*** (0.044)	0.0494*** (0.013)
<i>LS.PrivateEnterprise X UC.LS</i>	-0.00995 (0.023)	-0.0626 (0.065)	0.00814 (0.011)	-1.388 (1.169)	0.0458 (0.059)	-0.0735 (0.095)	0.00701 (0.036)
<i>LS.PrivateIndividual X UC.LS</i>	0.0316 (0.024)	-0.00812 (0.031)	0.0122** (0.006)	1.817*** (0.565)	0.0225 (0.030)	0.0537 (0.055)	0.0343 (0.022)
<i>LS.CollectivelyownedEnterprise X UC.LS</i>	0.0601 (0.043)	0.115 (0.084)	0.0222 (0.014)	1.011 (0.661)	-0.0588 (0.050)	0.295 (0.182)	0.0462 (0.032)
<i>LS.OperatingUnit X UC.LS</i>	0.102*** (0.028)	-0.0264 (0.165)	0.0832 (0.052)	4.65 (4.129)	0.239*** (0.041)	0.427*** (0.040)	0.217 (0.171)

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Control Variables							
<i>Ownership.Director</i>	0.186 (0.173)	0.0198 (0.187)	-0.108*** (0.039)	-5.686 (4.452)	0.0277 (0.189)	0.268 (0.363)	-0.301*** (0.096)
<i>Ownership.Supervisor</i>	0.117 (0.337)	-0.479 (0.355)	-0.0029 (0.084)	-11.90** (5.141)	0.2 (0.357)	0.804* (0.471)	0.000436 (0.159)
<i>Ownership.Executive</i>	-0.00417 (0.033)	-0.0648* (0.035)	0.0584*** (0.010)	-2.293*** (0.823)	0.0547 (0.041)	0.053 (0.081)	0.119*** (0.033)
<i>Ownership.Management</i>	-0.174 (0.171)	-0.0209 (0.191)	0.168*** (0.038)	2.265 (4.298)	0.0103 (0.191)	0.325 (0.346)	0.475*** (0.091)
<i>SSR</i>	0.0679*** (0.006)	0.00451 (0.007)	0.000169 (0.002)	-1.259*** (0.105)	0.0637*** (0.009)	0.00112 (0.016)	-0.00279 (0.006)
<i>Size</i>	0.862*** (0.018)	0.592*** (0.021)	0.00972*** (0.003)	-0.595** (0.271)	0.275*** (0.023)	1.080*** (0.030)	0.108*** (0.011)
<i>Leverage</i>	-0.226** (0.101)	-0.121** (0.056)	-0.0621*** (0.009)	0.804 (0.711)	-0.0944 (0.058)	0.111 (0.100)	-0.133*** (0.045)
<i>Age</i>	0.000654 (0.001)	-0.00943*** (0.002)	-0.000941*** (0.000)	0.356*** (0.022)	0.00953*** (0.002)	-0.0335*** (0.002)	-0.00670*** (0.001)
<i>Crisis</i>	0.0126*** (0.003)	-0.0176*** (0.004)	0.0123*** (0.001)	2.023*** (0.077)	0.0297*** (0.005)	-0.0148 (0.009)	0.0203*** (0.003)
Constant	0.970*** (0.152)	-2.179*** (0.182)	-0.0484** (0.024)	5.228** (2.317)	3.113*** (0.204)	-1.860*** (0.260)	-0.885*** (0.096)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.721	0.367	0.046	0.086	0.209	0.287	0.039

Table 3.10 Regression Results of the Effects of Largest Shareholders in Widely held Listed Firms on Firm Performance

This table employs equation 3.d (See the detailed interpretation of variables in the methodology, section 3.3) and presents the regression results about the interaction between the types of largest shareholders in widely held listed firms on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of the six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types in Widely held listed firms	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.CentralSOE</i>	0.181 (0.163)	0.0205 (0.063)	-0.00198 (0.020)	-0.446 (1.822)	-0.00353 (0.019)	0.195*** (0.020)	0.137 (0.109)
<i>LS.LocalSOE</i>	0.0337 (0.039)	0.025 (0.057)	0.00808 (0.015)	0.119 (0.618)	0.00213 (0.062)	-0.119 (0.125)	-0.0728 (0.052)
<i>LS.ForeignEnterprise</i>	-0.133** (0.066)	-0.133*** (0.022)	-0.0563*** (0.005)	-4.739* (2.758)	0.000527 (0.045)	0.0283 (0.197)	-0.125*** (0.044)
<i>LS.PrivateEnterprise</i>	-0.0205 (0.031)	-0.0579 (0.040)	0.00358 (0.008)	0.493 (0.665)	0.0349 (0.047)	-0.119 (0.093)	-0.00945 (0.038)
<i>LS.PrivateIndividual</i>	-0.0407 (0.028)	-0.0211 (0.042)	-0.0180** (0.008)	1.207 (0.998)	-0.0405 (0.040)	-0.199** (0.084)	-0.0577** (0.025)
<i>LS.CollectivelyownedEnterprise</i>	0.00675 (0.022)	0.0993*** (0.017)	0.111*** (0.003)	-1.847*** (0.151)	-0.0978*** (0.016)	1.035*** (0.029)	0.166*** (0.012)
Control Variables							
<i>Ownership.Director</i>	0.201 (0.176)	0.0128 (0.188)	-0.101** (0.039)	-4.322 (4.498)	0.0334 (0.190)	0.287 (0.363)	-0.278*** (0.097)
<i>Ownership.Supervisor</i>	0.0902 (0.342)	-0.483 (0.353)	-0.012 (0.086)	-12.98** (5.380)	0.181 (0.357)	0.771 (0.473)	-0.025 (0.160)
<i>Ownership.Executive</i>	-0.00289 (0.033)	-0.0649* (0.035)	0.0586*** (0.011)	-2.220*** (0.841)	0.0549 (0.042)	0.0556 (0.082)	0.120*** (0.033)
<i>Ownership.Management</i>	-0.165 (0.173)	-0.0233 (0.190)	0.170*** (0.039)	2.206 (4.352)	0.0255 (0.191)	0.347 (0.346)	0.479*** (0.090)
<i>SSR</i>	0.0711*** (0.006)	0.00179 (0.007)	0.000451 (0.002)	-1.324*** (0.102)	0.0698*** (0.008)	0.00663 (0.015)	-0.00402 (0.006)
<i>Size</i>	0.863*** (0.018)	0.592*** (0.021)	0.00996*** (0.003)	-0.565** (0.274)	0.275*** (0.024)	1.079*** (0.030)	0.110*** (0.012)
<i>Leverage</i>	-0.229** (0.101)	-0.123** (0.057)	-0.0629*** (0.009)	0.795 (0.729)	-0.0956 (0.059)	0.101 (0.097)	-0.137*** (0.047)
<i>Age</i>	0.000905 (0.001)	-0.00954*** (0.002)	-0.000920*** (0.000)	0.351*** (0.022)	0.00996*** (0.002)	-0.0324*** (0.002)	-0.00670*** (0.001)
<i>Crisis</i>	0.0130*** (0.003)	-0.0177*** (0.004)	0.0122*** (0.001)	1.998*** (0.077)	0.0304*** (0.005)	-0.0134 (0.009)	0.0200*** (0.003)
Constant	0.958*** (0.151)	-2.175*** (0.184)	-0.0497** (0.024)	5.271** (2.350)	3.102*** (0.205)	-1.863*** (0.262)	-0.897*** (0.099)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.72	0.365	0.045	0.083	0.205	0.285	0.036

Table 3.11 Regression Results of the Effects of Sixteen Types of Largest Shareholders on Alternative Firm Performance

This table employs equation 3.a (See the detailed interpretation of variables in the methodology, section 3.3) and presents the regression results about the effect of sixteen types of largest shareholders on alternative firm performance. The firm performance measures include firm output (operating profit) in column 2, profitability (net profit margin) in column 3, labour productivity (operating profit per employee) in column 4, operating efficiency (expense ratio) in column 5. The table shows the coefficients of twenty-one dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types	Dependent Variables: Firm Performance Measures			
	Operating Profit	Net Profit Margin	Operating Profit per Employee	Expense Ratio
<i>LS.PublicInstitution</i>	-0.137* (0.0822)	0.0187 (0.0304)	-0.222** (0.107)	0.00238 (0.0121)
<i>LS.CentralDepartment</i>	-0.113 (0.0787)	0.189* (0.112)	-0.133 (0.176)	-0.00965 (0.022)
<i>LS.CentralSOE</i>	-0.0727 (0.0712)	-0.0132 (0.0263)	-0.169* (0.0899)	0.00593 (0.0106)
<i>LS.LocalSOE</i>	-0.0633 (0.0563)	0.00689 (0.0244)	-0.129* (0.0678)	0.00266 (0.00993)
<i>LS.ProvincialAssetBureau</i>	-0.0147 (0.112)	-0.114 (0.114)	-0.115 (0.152)	0.0125 (0.0247)
<i>LS.ProvincialDepartment</i>	0.153 (0.105)	0.180** (0.0751)	0.0657 (0.0829)	-0.0773** (0.0386)
<i>LS.ProvincialSASAC</i>	0.0846 (0.121)	0.0115 (0.0372)	0.245 (0.201)	-5.45E-05 (0.0212)
<i>LS.MunicipalAssetBureau</i>	-0.240** (0.102)	-0.0561 (0.0466)	-0.362*** (0.12)	0.0113 (0.0193)
<i>LS.MunicipalDepartment</i>	-0.015 (0.116)	-0.0537 (0.0728)	-0.0798 (0.0945)	0.0111 (0.0207)
<i>LS.MunicipalSASAC</i>	-0.0633 (0.0916)	-0.0245 (0.0361)	-0.219** (0.111)	0.00164 (0.0119)
<i>LS.ForeignEnterprise</i>	-0.00419 (0.0748)	0.00505 (0.028)	-0.14 (0.0972)	-0.00239 (0.0116)
<i>LS.ForeignIndividual</i>	-0.318 (0.278)	-0.0551* (0.03)	-0.403 (0.27)	0.0742*** (0.0224)
<i>LS.PrivateEnterprise</i>	0.0154 (0.054)	0.0478** (0.0233)	0.00395 (0.0647)	0.00682 (0.0089)
<i>LS.PrivateIndividual</i>	0.0975* (0.0589)	0.0479* (0.0261)	0.0906 (0.07)	-0.0119 (0.00987)
<i>LS.CollectivelyownedEnterprise</i>	0.0189 (0.0918)	-0.0202 (0.0408)	-0.158 (0.113)	0.00162 (0.0179)
<i>LS.OperatingUnit</i>	0.820** (0.324)	0.0605 (0.174)	1.457*** (0.076)	-0.0760*** (0.0137)

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Control Variables				
<i>Ownership.Director</i>	-0.591*	-0.251***	-0.989***	0.0356
	(0.316)	(0.0794)	(0.343)	(0.0366)
<i>Ownership.Supervisor</i>	0.0889	-0.0312	-0.204	-0.156*
	(0.628)	(0.135)	(0.685)	(0.0859)
<i>Ownership.Executive</i>	0.295***	0.107***	0.334***	-0.00459
	(0.0745)	(0.0294)	(0.0819)	(0.0127)
<i>Ownership.Management</i>	0.931***	0.404***	1.311***	-0.0643*
	(0.315)	(0.0746)	(0.342)	(0.0339)
<i>SSR</i>	0.0338**	-0.00463	0.0330**	-0.00375**
	(0.0133)	(0.00542)	(0.0156)	(0.0019)
<i>Size</i>	0.911***	0.0605***	0.318***	-0.0157***
	(0.0246)	(0.00969)	(0.0349)	(0.00451)
<i>Leverage</i>	-0.448***	-0.109**	-0.265***	0.0948***
	(0.0756)	(0.0441)	(0.0795)	(0.0204)
<i>Age</i>	-0.00853***	-0.00286***	-0.00291	0.00126***
	(0.00225)	(0.000803)	(0.00291)	(0.000333)
<i>Crisis</i>	0.0722***	0.0224***	0.0927***	-0.00426***
	(0.00783)	(0.00293)	(0.0089)	(0.00105)
Constant	-0.507**	-0.503***	1.782***	0.216***
	(0.22)	(0.0856)	(0.311)	(0.0405)
Observations	19,533	23,028	19,292	23,015
Number of Firms	2,810	2,825	2,795	2,826
R-squared	0.322	0.026	0.062	0.037

Table 3.12 Regression Results of the Effects of Largest Shareholders on Firm Performance from 2003 to 2005

This table employs equation 3.a (See the detailed interpretation of variables in the methodology, section 3.3) and presents the regression results about the effect of largest shareholders on firm performance. The LS.CentralDepartment, LS.ForeignIndividual, LS.OperatingUnit are dropped avoiding collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of nineteen dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage.

The sample is yearly from 2003 to 2005.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution</i>	-0.082 (0.091)	-0.136* (0.074)	0.0374 (0.032)	1.189 (1.685)	0.0263 (0.072)	0.4 (0.282)	0.188 (0.177)
<i>LS.CentralSOE</i>	-0.0788 (0.090)	-0.0073 (0.066)	0.023 (0.032)	2.464 (1.793)	-0.0976 (0.065)	0.254 (0.220)	0.189 (0.180)
<i>LS.LocalSOE</i>	-0.026 (0.084)	-0.00493 (0.061)	0.0303 (0.029)	1.835 (1.675)	-0.0427 (0.055)	0.174 (0.204)	0.203 (0.178)
<i>LS.ProvincialAssetBureau</i>	-0.0299 (0.101)	-0.0237 (0.115)	-0.00414 (0.047)	2.214 (1.692)	-0.0296 (0.103)	0.372 (0.351)	0.22 (0.189)
<i>LS.ProvincialDepartment</i>	-0.104 (0.091)	-0.174** (0.074)	0.00959 (0.032)	0.599 (1.691)	0.0423 (0.073)	-0.0208 (0.282)	0.14 (0.177)
<i>LS.ProvincialSASAC</i>	-0.119 (0.113)	-0.162 (0.112)	0.00705 (0.052)	2.721 (1.691)	0.0193 (0.069)	0.332 (0.282)	0.249 (0.181)
<i>LS.MunicipalAssetBureau</i>	-0.0157 (0.098)	0.0211 (0.099)	0.0467 (0.035)	2.595 (1.975)	-0.077 (0.126)	0.158 (0.253)	0.298 (0.209)
<i>LS.MunicipalDepartment</i>	-0.00214 (0.094)	0.0601 (0.080)	0.0355 (0.031)	4.529 (2.753)	-0.0969 (0.082)	0.328 (0.245)	-0.0342 (0.270)
<i>LS.MunicipalSASAC</i>	-0.0161 (0.093)	0.0973 (0.099)	0.0368 (0.031)	1.968 (1.876)	-0.146 (0.107)	0.031 (0.225)	0.25 (0.198)
<i>LS.ForeignEnterprise</i>	0.00286 (0.086)	0.0773 (0.112)	0.028 (0.034)	1.489 (1.659)	0.0071 (0.062)	0.214 (0.211)	0.114 (0.193)
<i>LS.PrivateEnterprise</i>	0.00442 (0.084)	-0.0382 (0.062)	0.0451 (0.029)	1.176 (1.676)	-7.83E-05 (0.057)	0.186 (0.208)	0.177 (0.175)
<i>LS.PrivateIndividual</i>	-0.142 (0.103)	-0.0246 (0.072)	-0.0213 (0.040)	0.144 (1.779)	-0.159* (0.087)	0.0908 (0.261)	-0.0553 (0.227)
<i>LS.CollectivelyownedEnterprise</i>	0.185 (0.136)	0.132 (0.162)	0.0570* (0.035)	0.695 (1.463)	0.0152 (0.092)	0.217 (0.275)	0.299 (0.195)

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Control Variables							
<i>Ownership.Director</i>	1.035 (0.970)	0.0471 (1.103)	0.560* (0.303)	-0.216 (10.590)	0.937 (1.448)	0.633 (8.222)	2.346* (1.418)
<i>Ownership.Supervisor</i>	0.447 (1.022)	-0.575 (1.277)	0.266 (0.261)	2.189 (11.290)	0.97 (1.530)	2.558 (8.569)	-0.512 (1.245)
<i>Ownership.Executive</i>	-0.177 (0.138)	0.0199 (0.121)	0.00644 (0.047)	-1.058 (1.756)	-0.198 (0.202)	-0.801 (0.868)	0.00304 (0.227)
<i>Ownership.Management</i>	-0.569 (0.911)	-0.0366 (1.073)	-0.328 (0.249)	-0.346 (10.300)	-0.48 (1.353)	-0.418 (8.036)	-1.263 (1.007)
<i>Size</i>	0.924*** (0.066)	0.464*** (0.053)	0.0876*** (0.020)	0.766 (1.072)	0.469*** (0.067)	1.649*** (0.132)	0.459*** (0.099)
<i>Leverage</i>	-0.2 (0.135)	-0.0637 (0.092)	-0.0596 (0.038)	0.273 (1.560)	-0.106 (0.116)	0.357** (0.179)	-0.174 (0.176)
<i>Age</i>	0.0299*** (0.004)	-0.00599* (0.003)	-0.0108*** (0.001)	-0.491*** (0.070)	0.0351*** (0.005)	-0.0797*** (0.010)	-0.0409*** (0.007)
Constant	0.122 (0.591)	-1.017** (0.479)	-0.703*** (0.178)	-1.027 (9.506)	1.084* (0.600)	-6.855*** (1.197)	-3.965*** (0.872)
Observations	3,529	3,539	3,482	3,545	3,502	3,514	3,468
Number of Firms	1,303	1,309	1,304	1,314	1,297	1,302	1,302
R-squared	0.368	0.099	0.066	0.051	0.135	0.135	0.076

Table 3.13 Regression Results of the Effects of Largest Shareholders on Firm Performance from 2006 to 2009

This table employs equation 3.a (See the detailed interpretation of variables in the methodology, section 3.3) and presents the regression results about the effect of largest shareholders on firm performance. The LS.CentralDepartment, LS.OperatingUnit are dropped avoiding collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of nineteen dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2006 to 2009.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution</i>	-0.0669 (0.045)	0.246 (0.192)	-0.0637** (0.028)	2.356 (1.776)	-0.0857* (0.044)	-0.114 (0.245)	-0.0127 (0.074)
<i>LS.CentralSOE</i>	-0.0121 (0.053)	0.187 (0.191)	-0.0503** (0.026)	2.091 (1.610)	-0.0417 (0.052)	0.195 (0.249)	-0.0448 (0.048)
<i>LS.LocalSOE</i>	-0.0224 (0.036)	0.241 (0.192)	-0.0392* (0.023)	1.117 (1.115)	-0.0658 (0.043)	0.15 (0.242)	-0.0304 (0.043)
<i>LS.ProvincialAssetBureau</i>	0.073 (0.059)	0.246 (0.243)	-0.0679* (0.041)	-2.917 (2.666)	0.0167 (0.134)	0.072 (0.314)	-0.0049 (0.140)
<i>LS.ProvincialDepartment</i>	0.0367 (0.039)	0.321 (0.196)	-0.0371 (0.024)	1.777 (1.209)	-0.0845 (0.055)	-0.0387 (0.243)	-0.048 (0.047)
<i>LS.ProvincialSASAC</i>	-0.0172 (0.067)	0.0714 (0.292)	-0.039 (0.027)	-2.856 (2.664)	0.103 (0.197)	-0.242 (0.346)	-0.181 (0.162)
<i>LS.MunicipalAssetBureau</i>	-0.0972 (0.062)	0.17 (0.213)	-0.0224 (0.047)	7.949 (5.999)	-0.0815 (0.104)	-0.142 (0.434)	-0.0168 (0.141)
<i>LS.MunicipalDepartment</i>	-0.0074 (0.091)	0.304 (0.201)	-0.0540* (0.031)	1.686 (1.720)	-0.132** (0.054)	0.321 (0.251)	0.00821 (0.056)
<i>LS.MunicipalSASAC</i>	-0.114** (0.053)	0.267 (0.197)	-0.0689* (0.037)	2.133 (2.800)	-0.190*** (0.068)	0.089 (0.287)	-0.153 (0.094)
<i>LS.ForeignEnterprise</i>	-0.116 (0.078)	0.358* (0.194)	-0.0523 (0.032)	0.359 (0.947)	-0.274*** (0.105)	0.653* (0.341)	-0.065 (0.084)
<i>LS.ForeignIndividual</i>	0.192 (0.122)	0.510** (0.204)	-0.0857** (0.0346)	-2.546** (-1.132)	-0.171 (-0.193)	1.882*** (-0.406)	0.0156 (-0.124)
<i>LS.PrivateEnterprise</i>	-0.0403 (0.036)	0.226 (0.182)	-0.0271 (0.023)	1.813** (0.919)	-0.054 (0.042)	0.18 (0.241)	-0.00961 (0.044)
<i>LS.PrivateIndividual</i>	0.133 (0.121)	0.205 (0.205)	-0.015 (0.034)	2.884*** (1.082)	0.0818 (0.193)	0.233 (0.401)	0.141 (0.124)
<i>LS.CollectivelyownedEnterprise</i>	0.0147 (0.069)	0.380** (0.169)	-0.0445 (0.033)	1.323 (1.723)	-0.124 (0.200)	0.285 (0.238)	-0.171 (0.117)

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Control Variables							
<i>Ownership.Director</i>	-0.341 (0.623)	0.292 (0.219)	-0.0375 (0.073)	-9.779* (5.842)	-0.575 (0.600)	-1.05 (0.754)	-0.0756 (0.122)
<i>Ownership.Supervisor</i>	-0.595 (0.867)	0.333 (0.398)	0.0223 (0.301)	-16.84 (11.850)	-1.045 (0.857)	0.154 (1.261)	-0.243 (0.282)
<i>Ownership.Executive</i>	-0.0169 (0.059)	0.0426 (0.058)	0.0693** (0.032)	2.845 (2.519)	-0.0361 (0.089)	0.152 (0.212)	0.0595 (0.047)
<i>Ownership.Management</i>	0.389 (0.676)	-0.547** (0.243)	0.0832 (0.082)	8.037 (6.821)	0.941 (0.663)	1.114 (0.845)	0.203 (0.138)
<i>Size</i>	0.771*** (0.037)	0.432*** (0.043)	0.0276** (0.011)	1.171* (0.626)	0.346*** (0.052)	1.126*** (0.090)	0.242*** (0.037)
<i>Leverage</i>	-0.220*** (0.073)	-0.149** (0.070)	-0.0770*** (0.018)	2.194 (1.530)	-0.0532 (0.111)	0.288 (0.177)	-0.261*** (0.076)
<i>Age</i>	-0.00758** (0.004)	-0.0101*** (0.004)	-0.00803*** (0.001)	-0.552*** (0.086)	0.00128 (0.004)	-0.0494*** (0.010)	-0.0267*** (0.004)
<i>Crisis</i>	0.0446*** (0.00649)	0.0122* (0.00656)	0.0160*** (0.00227)	3.047*** (0.173)	0.0359*** (0.00839)	0.0637*** (0.0193)	0.0225*** (0.00733)
Constant	1.978*** (0.326)	-0.904** (0.430)	-0.0904 (0.097)	-3.367 (5.638)	2.626*** (0.467)	-2.315*** (0.794)	-1.850*** (0.312)
Observations	5,138	5,121	5,107	5,139	5,065	5,128	5,104
Number of Firms	1,640	1,639	1,642	1,650	1,632	1,640	1,646
R-squared	0.441	0.178	0.034	0.093	0.11	0.163	0.057

Table 3.14 Regression Results of the Effects of Largest Shareholders on Firm Performance from 2010 to 2016

This table employs equation 3.a (See the detailed interpretation of variables in the methodology, section 3.3) and presents the regression results about the effect of largest shareholders on firm performance. The LS.CentralDepartment, LS.MunicipalDepartment are dropped avoiding collinearity. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of nineteen dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2010 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: Largest Shareholders Types	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>LS.PublicInstitution</i>	-0.0371 (0.049)	0.0855 (0.088)	0.0283 (0.022)	0.264 (1.535)	-0.113 (0.096)	0.0932 (0.136)	0.146* (0.076)
<i>LS.CentralSOE</i>	-0.0308 (0.038)	0.0305 (0.047)	-0.0145 (0.011)	-0.435 (0.740)	-0.0711* (0.038)	-0.0637 (0.087)	-0.0214 (0.042)
<i>LS.LocalSOE</i>	-0.0015 (0.028)	0.0577* (0.033)	0.000588 (0.008)	-0.231 (0.645)	-0.0515 (0.032)	-0.0143 (0.068)	0.0166 (0.034)
<i>LS.ProvincialAssetBureau</i>	0.0819 (0.097)	0.116*** (0.028)	0.0219 (0.015)	-2.199*** (0.616)	-0.025 (0.095)	-0.804*** (0.068)	0.0789* (0.045)
<i>LS.ProvincialDepartment</i>	0.293*** (0.034)	0.108** (0.044)	0.0381*** (0.008)	-0.992 (0.737)	0.184*** (0.041)	0.681*** (0.080)	0.0886** (0.038)
<i>LS.ProvincialSASAC</i>	0.00443 (0.039)	0.0603 (0.049)	-0.00567 (0.012)	0.578 (0.979)	-0.0498 (0.062)	-0.064 (0.114)	-0.015 (0.038)
<i>LS.MunicipalAssetBureau</i>	-0.0325 (0.080)	0.367*** (0.127)	-0.0387* (0.020)	-0.709 (0.721)	-0.396*** (0.118)	-0.179 (0.317)	0.00654 (0.047)
<i>LS.MunicipalSASAC</i>	-0.0203 (0.076)	0.229** (0.103)	-0.00135 (0.013)	-0.433 (0.721)	-0.243* (0.132)	-0.113 (0.159)	0.0252 (0.046)
<i>LS.ForeignEnterprise</i>	0.0189 (0.038)	0.0836 (0.054)	-0.00177 (0.010)	-3.466*** (1.322)	-0.0588 (0.070)	0.183** (0.089)	-0.0161 (0.037)
<i>LS.ForeignIndividual</i>	0.200*** (0.0257)	0.140*** (0.0297)	0.0138* (0.00722)	13.39*** (0.636)	0.0453 (0.0305)	0.426*** (0.065)	0.00175 (0.0309)
<i>LS.PrivateEnterprise</i>	-0.0137 (0.024)	0.0102 (0.028)	0.00513 (0.007)	-0.844 (0.598)	-0.0133 (0.030)	0.0161 (0.059)	0.0118 (0.031)
<i>LS.PrivateIndividual</i>	0.0169 (0.026)	0.033 (0.030)	0.00962 (0.007)	0.461 (0.637)	-0.0287 (0.030)	0.112* (0.065)	0.0286 (0.031)
<i>LS.CollectivelyownedEnterprise</i>	-0.0173 (0.044)	0.0615 (0.057)	-0.0027 (0.019)	-0.236 (0.975)	-0.0721 (0.046)	-0.247 (0.199)	-0.0117 (0.048)
<i>LS.OperatingUnit</i>	0.122*** (0.0451)	-0.0242 (0.0306)	0.0929 (0.0909)	7.355 (5.835)	0.184*** (0.0291)	0.523*** (0.103)	0.196 (0.316)

(Continued on next page)

Control Variables							
<i>Ownership.Director</i>	0.301 (0.216)	-0.036 (0.190)	-0.0719** (0.036)	-7.152 (4.440)	0.0871 (0.188)	0.752** (0.334)	-0.196* (0.111)
<i>Ownership.Supervisor</i>	0.272 (0.430)	-0.441 (0.377)	0.0525 (0.066)	-10.37** (4.723)	0.135 (0.339)	0.894* (0.480)	0.0576 (0.204)
<i>Ownership.Executive</i>	-0.0435 (0.036)	-0.0771** (0.036)	0.0519*** (0.011)	-1.728* (0.923)	0.0402 (0.040)	0.0572 (0.086)	0.118*** (0.038)
<i>Ownership.Management</i>	-0.362* (0.215)	0.114 (0.191)	0.0929*** (0.035)	3.9 (4.259)	-0.222 (0.184)	-0.282 (0.320)	0.287*** (0.106)
<i>Size</i>	0.820*** (0.020)	0.583*** (0.026)	0.0291*** (0.004)	-0.341 (0.448)	0.245*** (0.027)	1.109*** (0.042)	0.167*** (0.018)
<i>Leverage</i>	-0.164*** (0.064)	-0.0813* (0.048)	-0.101*** (0.013)	4.129*** (1.184)	-0.0793** (0.033)	0.063 (0.105)	-0.198*** (0.058)
<i>Age</i>	-0.0105*** (0.002)	-0.00803*** (0.002)	-0.00590*** (0.000)	0.717*** (0.040)	-0.0032 (0.002)	-0.0692*** (0.004)	-0.0192*** (0.002)
<i>Crisis</i>	-0.0290*** (0.00416)	-0.0287*** (0.0049)	0.00885*** (0.00126)	3.253*** (0.0979)	-0.00185 (0.00555)	-0.118*** (0.0116)	0.00916** (0.00384)
Constant	1.608*** (0.175)	-2.176*** (0.225)	-0.145*** (0.034)	-3.195 (3.892)	3.712*** (0.232)	-1.534*** (0.374)	-1.238*** (0.151)
Observations	14,320	14,385	14,470	14,334	14,206	14,389	14,447
Number of Firms	2,760	2,758	2,779	2,772	2,750	2,765	2,776
R-squared	0.622	0.363	0.107	0.123	0.075	0.235	0.08

Figures of Chapter Three

Figure 3.1 Control Structure of Listed Firm Kingdream Public Limited Company

The figure shows the control structure of listed firm Kingdream Public Limited Company in 2005 which is disclosed in the annual report. The ultimate controller (Sinopec Group) is directly related to the largest shareholder (Jiangnan Petroleum Administration Bureau of China Petro-chemical Group).

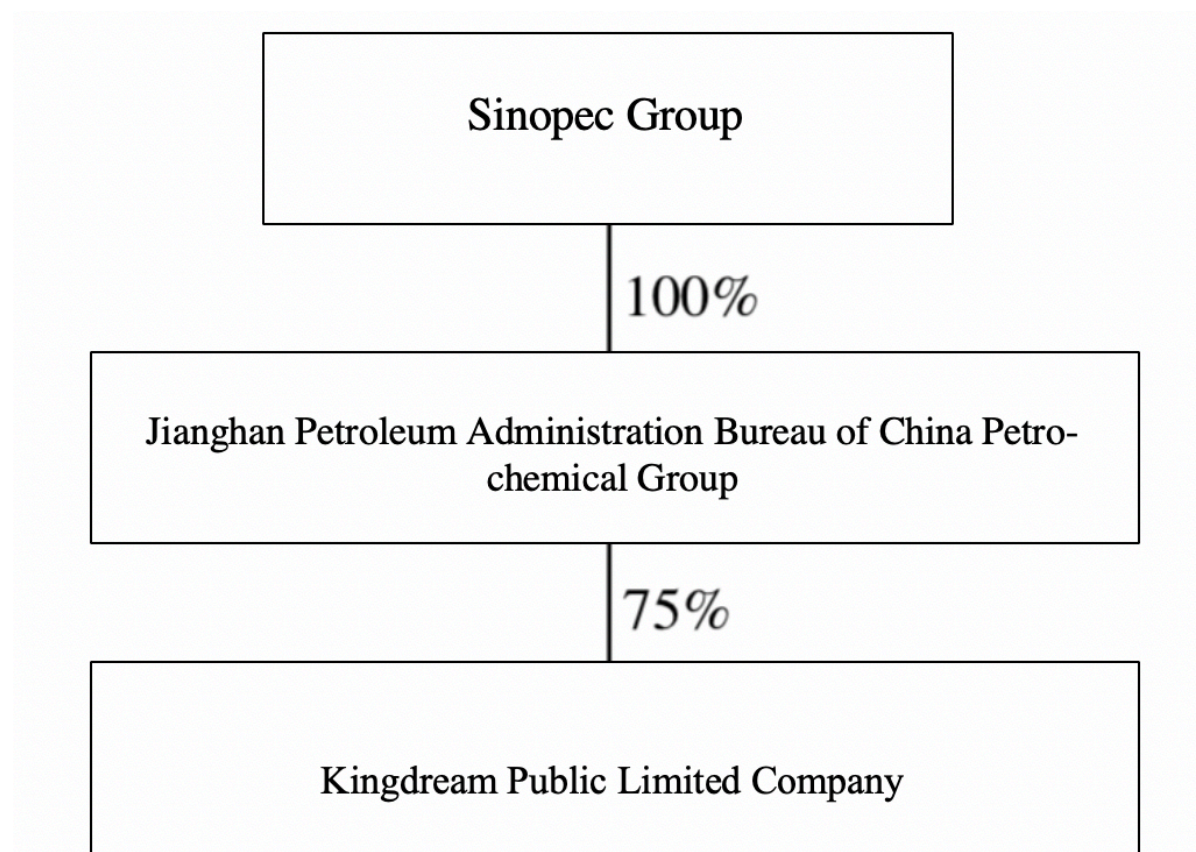


Figure 3.2 Control Structure of Listed Firm HUBEI SANXIA NEW BUILDING MATERIALS CO.

This figure shows the control structure of listed firm HUBEI SANXIA NEW BUILDING MATERIALS CO. in 2012 which is disclosed in their annual report. Dangyang State-owned Assets Administration Bureau is the largest shareholder, but the control rights are held by a private individual – Xizhong Xu. Xu controls the second largest shareholder, Hainan Zongxuanda Industry Investment Co., Ltd., and owns a part of the third largest shareholder, Dangyang Guozhong'an Investment Co., Ltd.'s voting rights through a pyramid structure.

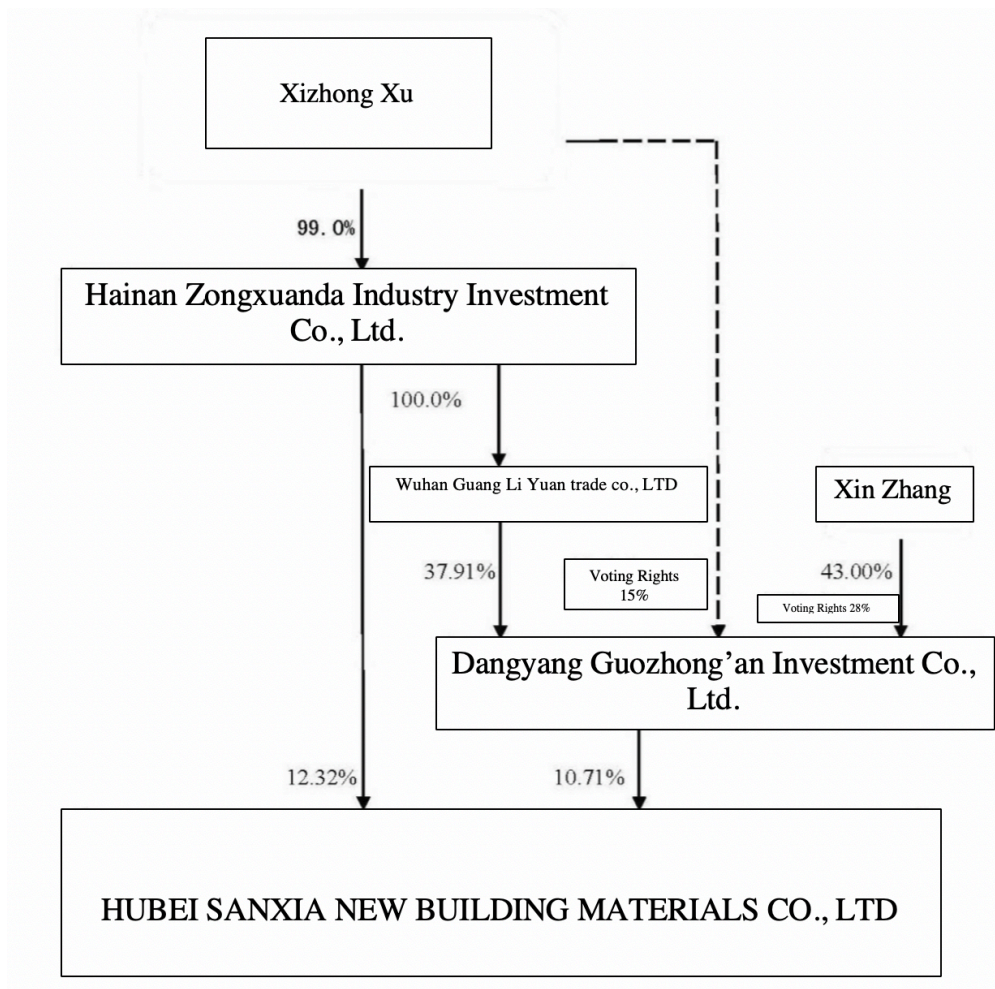


Figure 3.3 Control Structure of Listed Firm YANG GUANG CO., LTD.

This figure shows the control structure of listed firm YANG GUANG CO., LTD. in 2015, which is disclosed in their annual report. None of the upper-level entities can solely control the operation and nominate the management team of this firm, and it is actually widely held.

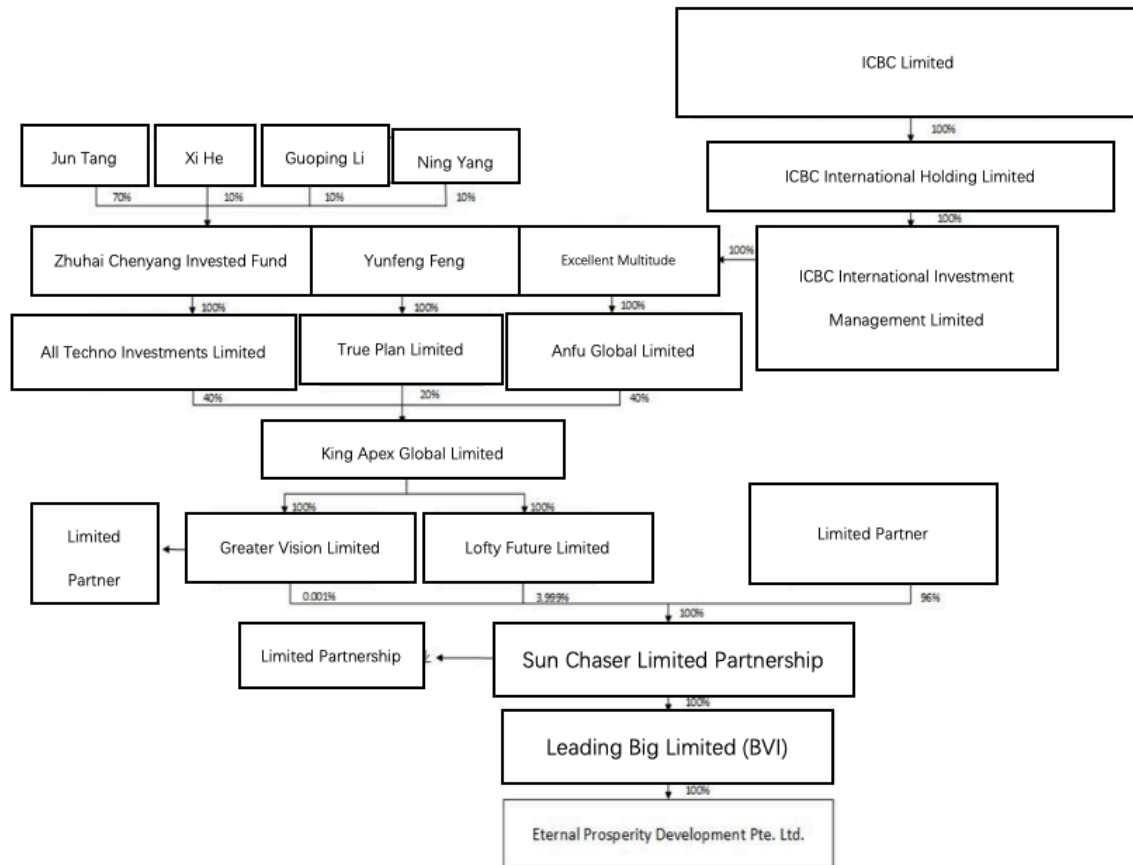


Figure 3.4 Control Structure of Listed Firm CSG Holding Co., Ltd.

This figure shows the control structure of listed firm CSG Holding Co., Ltd. in 2010 which is disclosed in the annual report. The top five shareholders' share proportion is around 3%, which means this listed firm is widely held. The State-owned Assets Supervision and Administration Bureau of Shenzhen controls the parent company of largest and third largest shareholders and owns 7.1% voting rights of the listed firm.

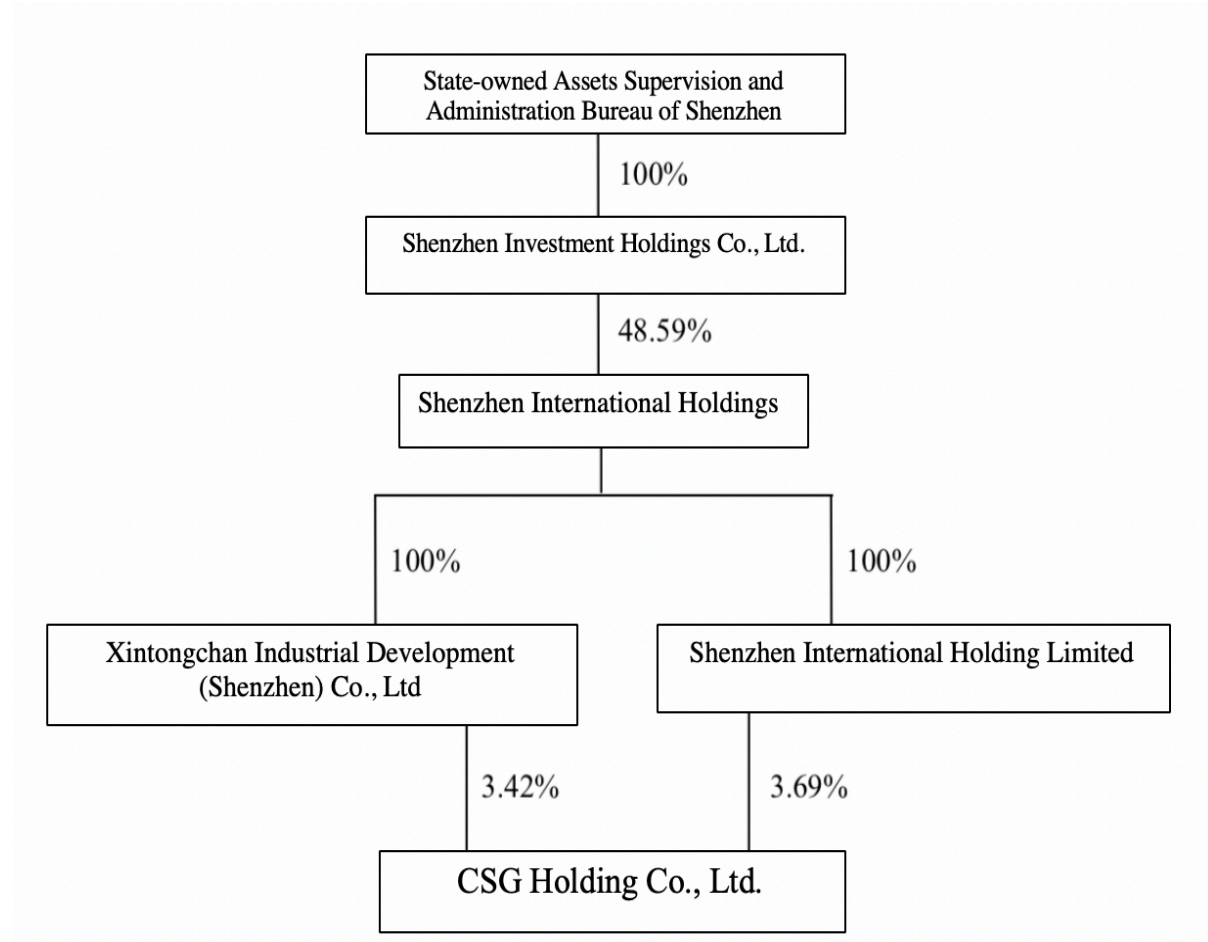


Figure 3.5 The Effects of the Types of Largest Shareholders on Output

This figure presents the effects of the types of largest shareholders on firm output. Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

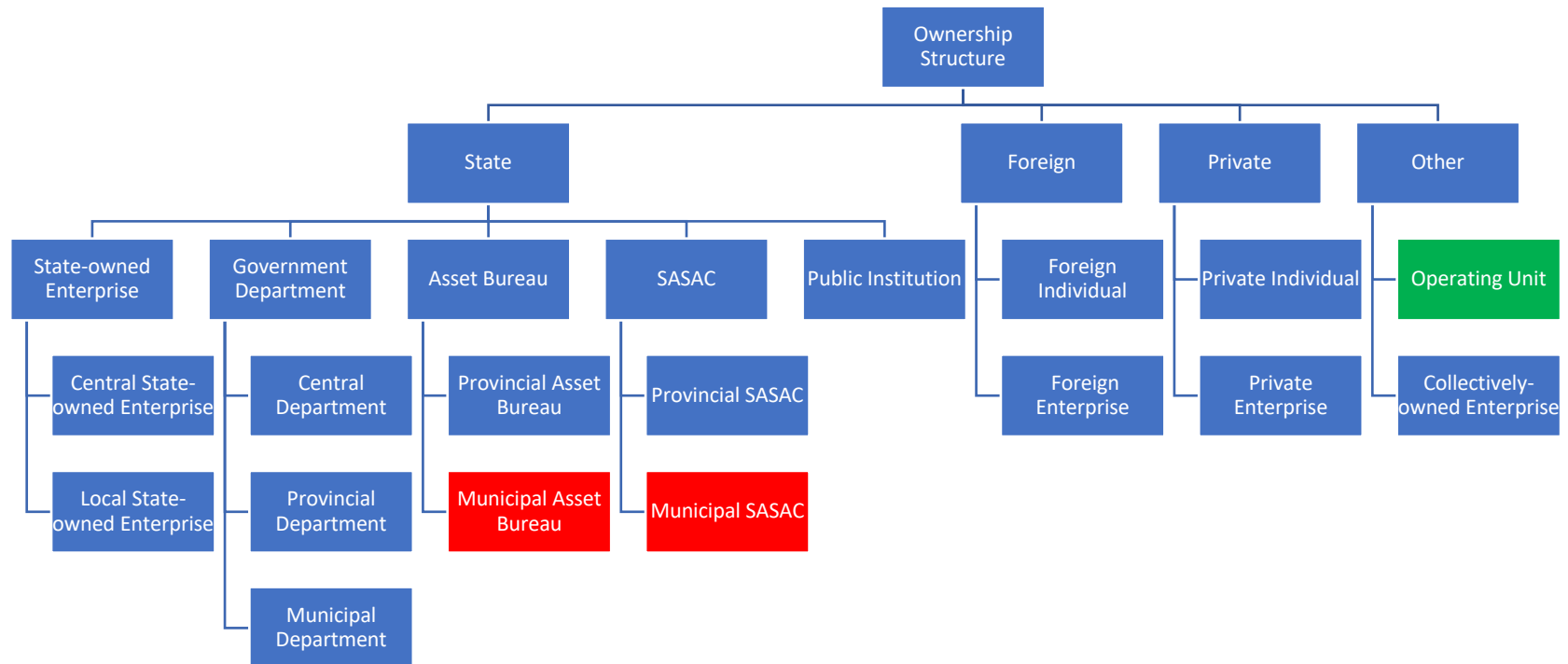


Figure 3.6 The Effects of the Types of Largest Shareholders on Employment

This figure presents the effects of the types of largest shareholders on firm employment. Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

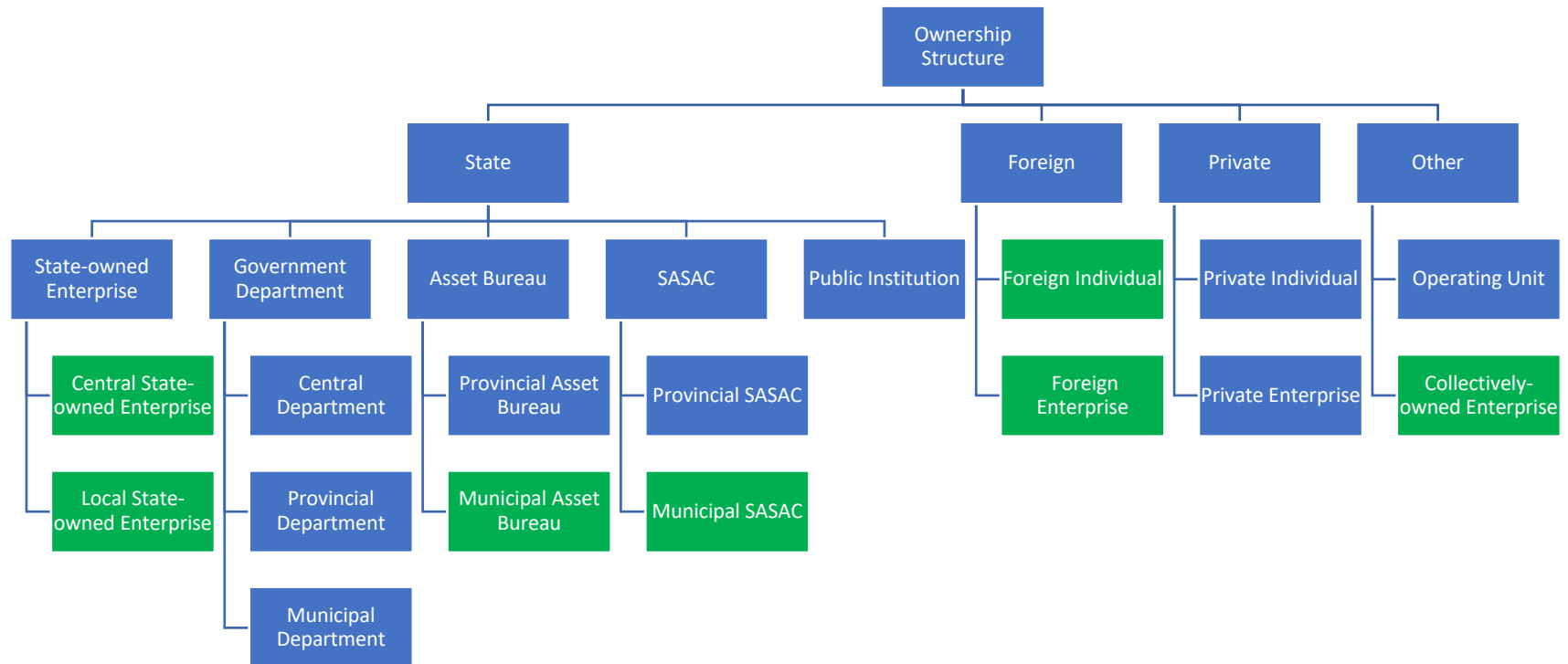


Figure 3.7 The Effects of the Types of Largest Shareholders on Profitability (ROA)

This figure presents the effects of the types of largest shareholders on firm profitability (ROA). Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

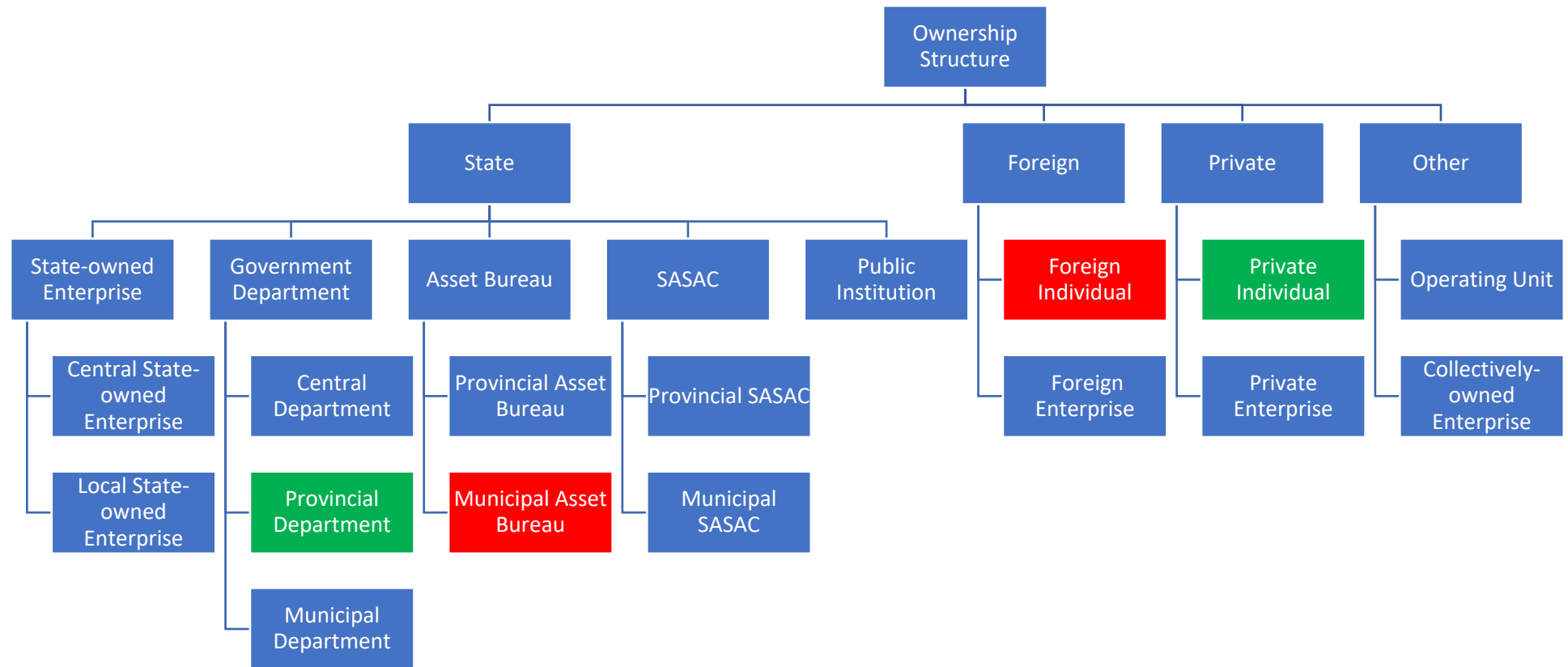


Figure 3.8 The Effects of the Types of Largest Shareholders on Profitability (Tobin's Q)

This figure presents the effects of the types of largest shareholders on firm profitability (Tobin's Q). Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

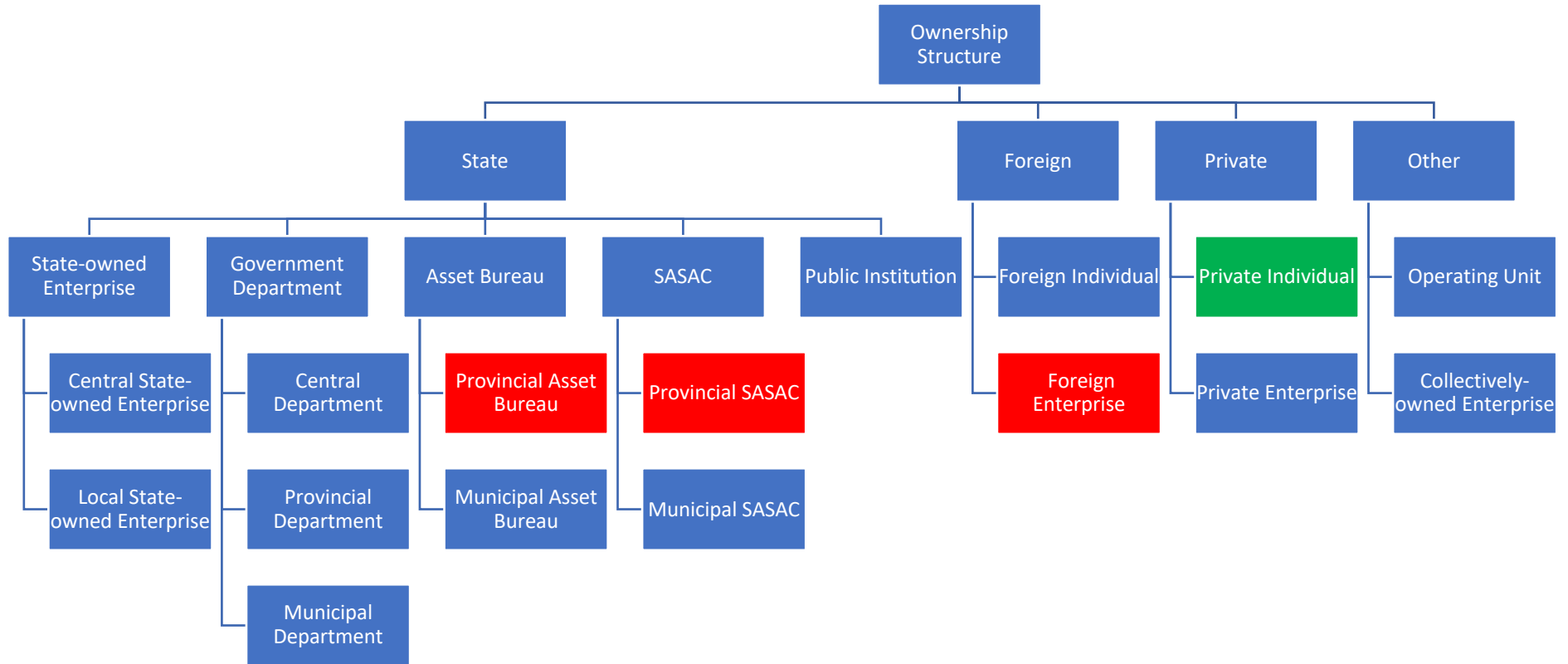


Figure 3.9 The Effects of the Types of Largest Shareholders on Labour Productivity

This figure presents the effects of the types of largest shareholders on firm labour productivity. Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

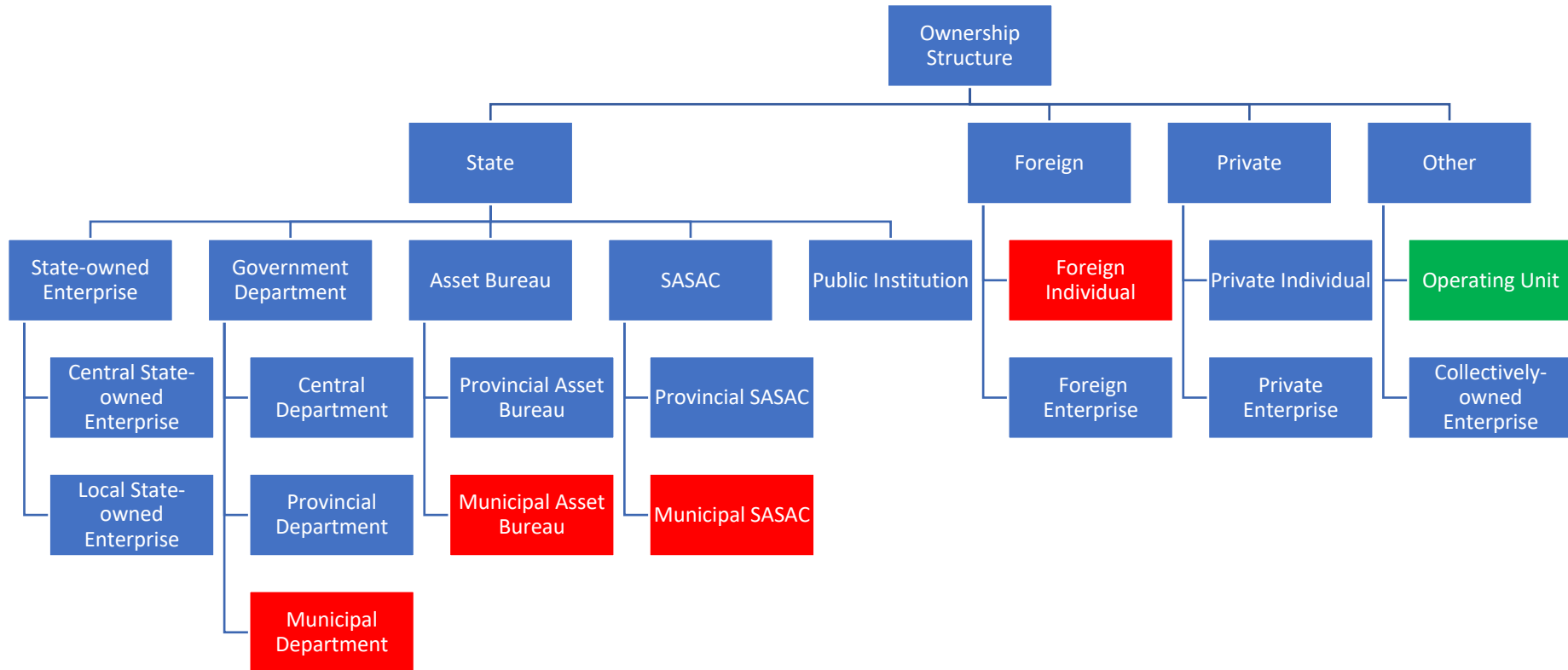


Figure 3.10 The Effects of the Types of Largest Shareholders on Investment

This figure presents the effects of the types of largest shareholders on firm investment. Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

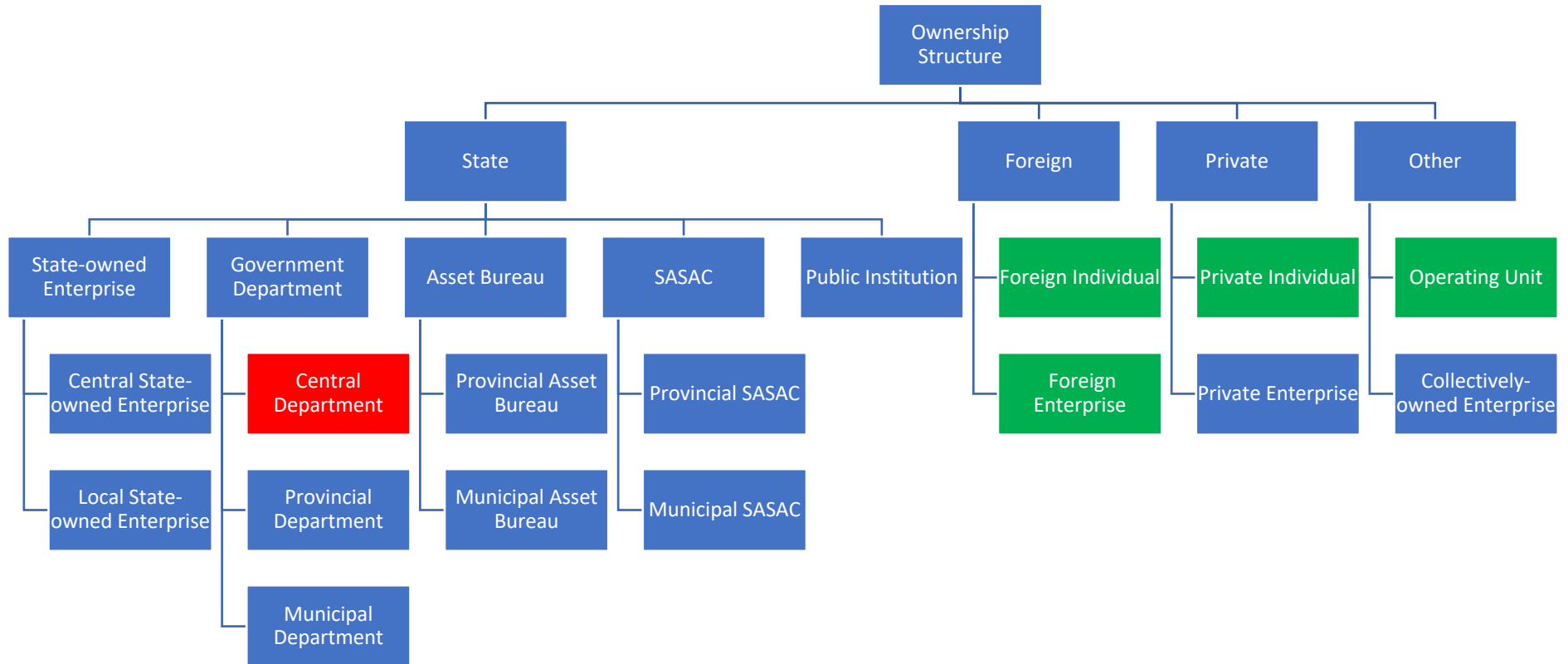


Figure 3.11 The Effects of the Types of Largest Shareholders on Operating Efficiency

This figure presents the effects of the types of largest shareholders on firm operating efficiency. Blue rectangles mean no effects of the type of largest shareholders on firm performance. Green rectangles mean positive effects of the type of largest shareholders on firm performance. Red rectangles mean negative effects of the type of largest shareholders on firm performance.

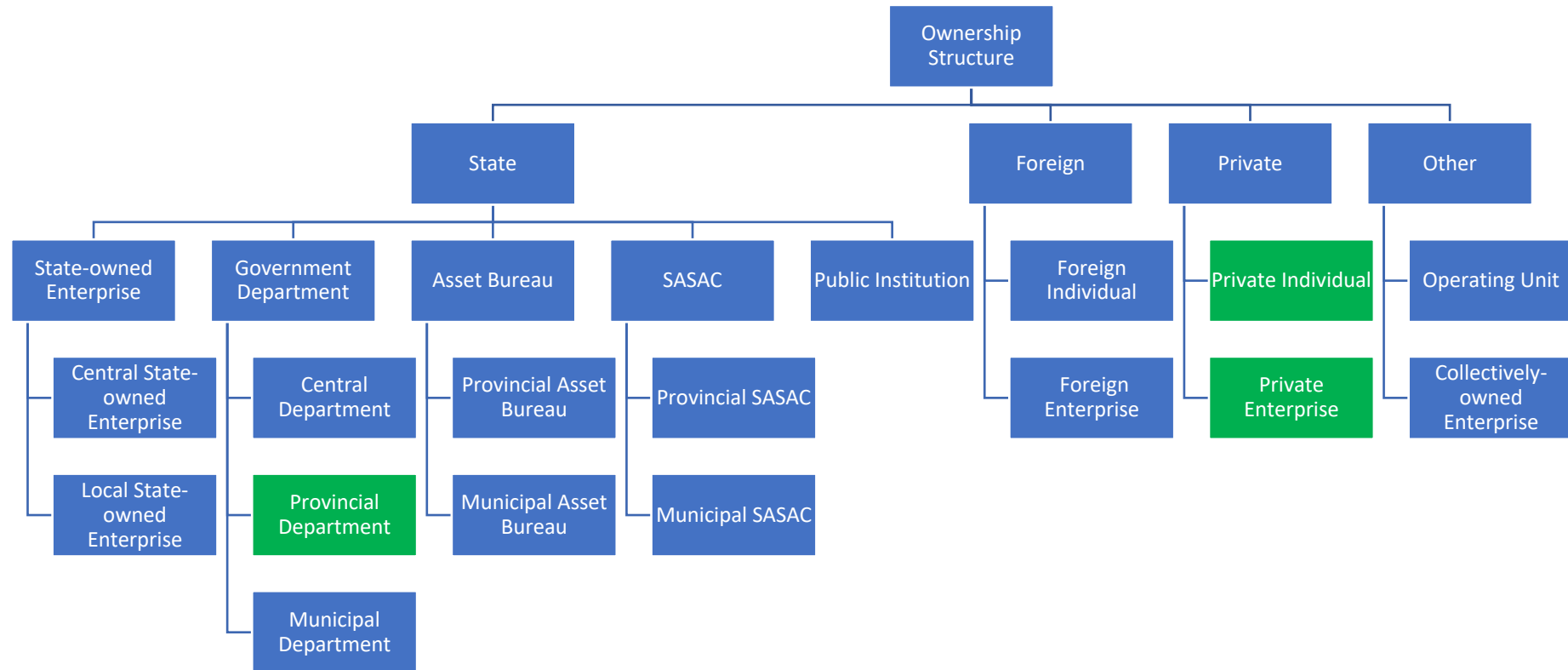


Figure 3.12 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Output

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm output. Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

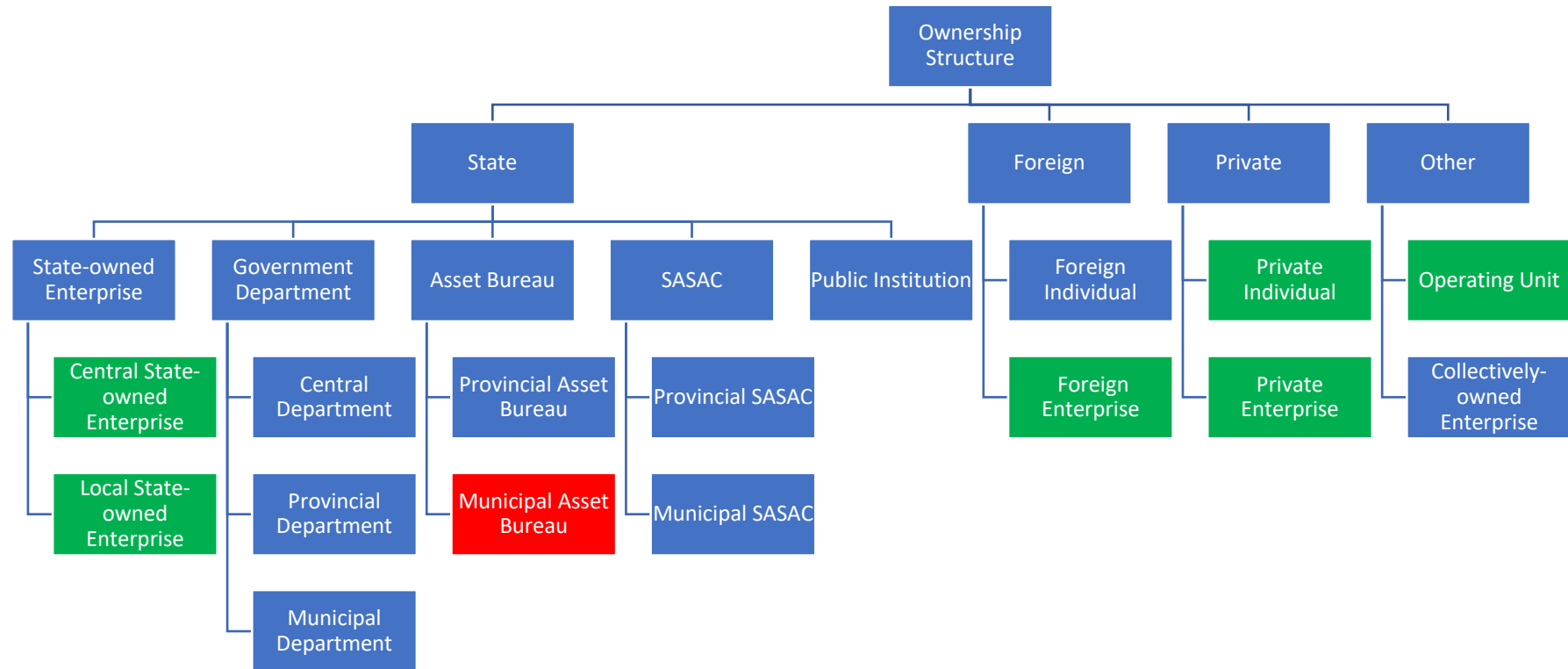


Figure 3.13 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Employment

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm employment. Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

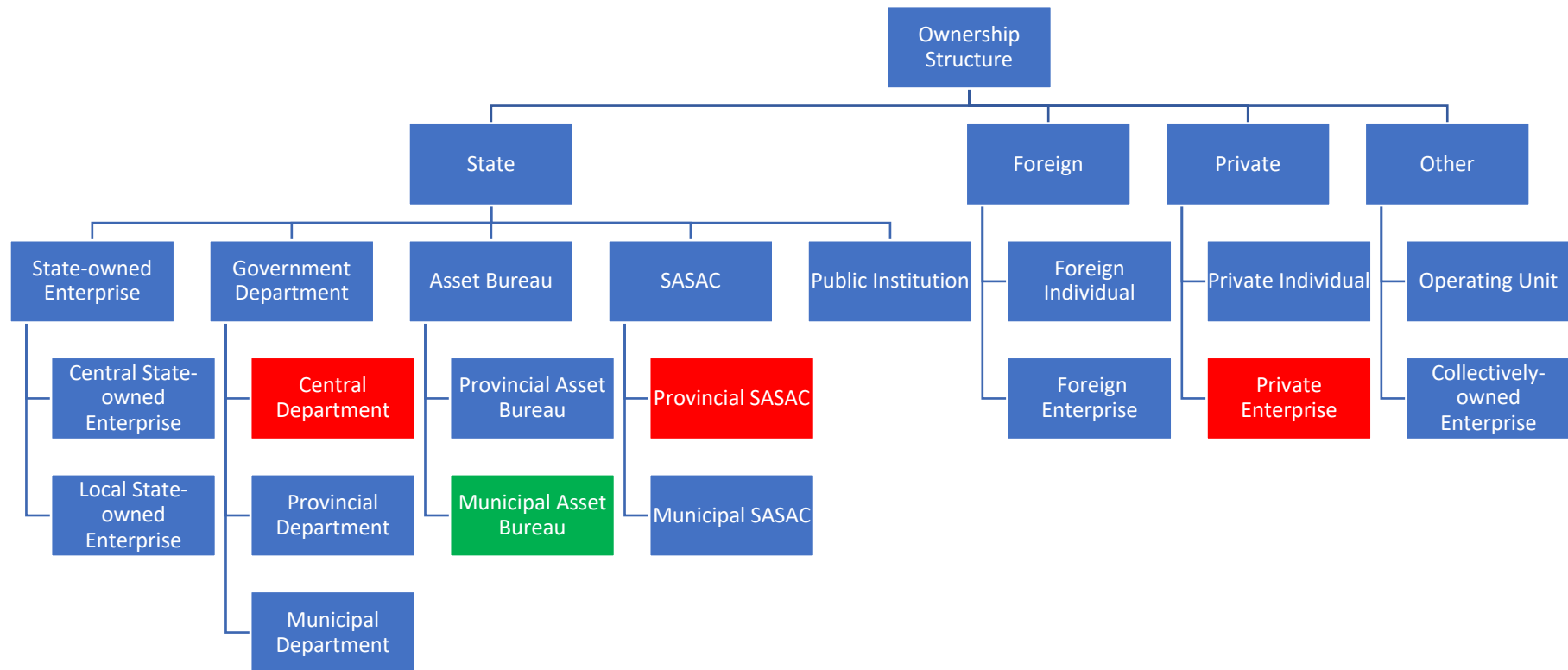


Figure 3.14 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Profitability (ROA)

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm profitability (ROA). Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

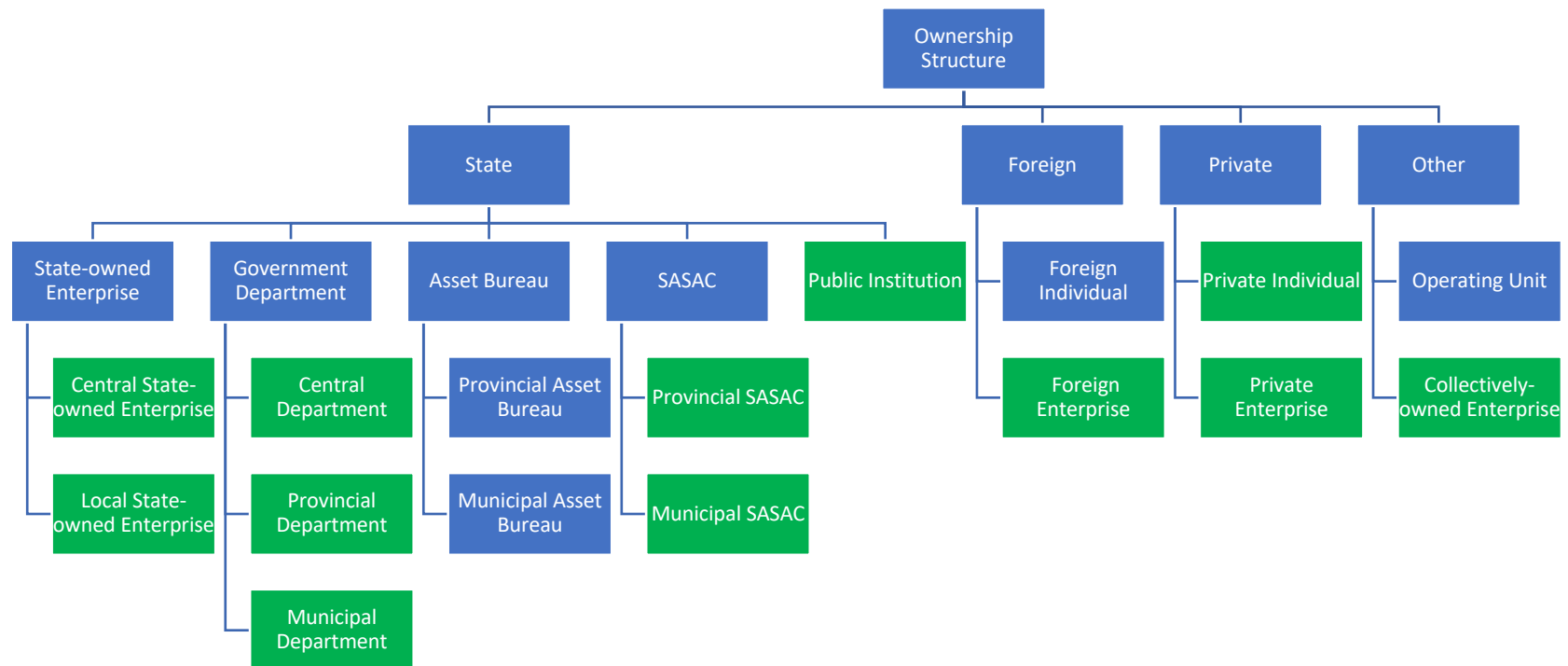


Figure 3.15 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Profitability (Tobin's Q)

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm profitability (Tobin's Q). Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

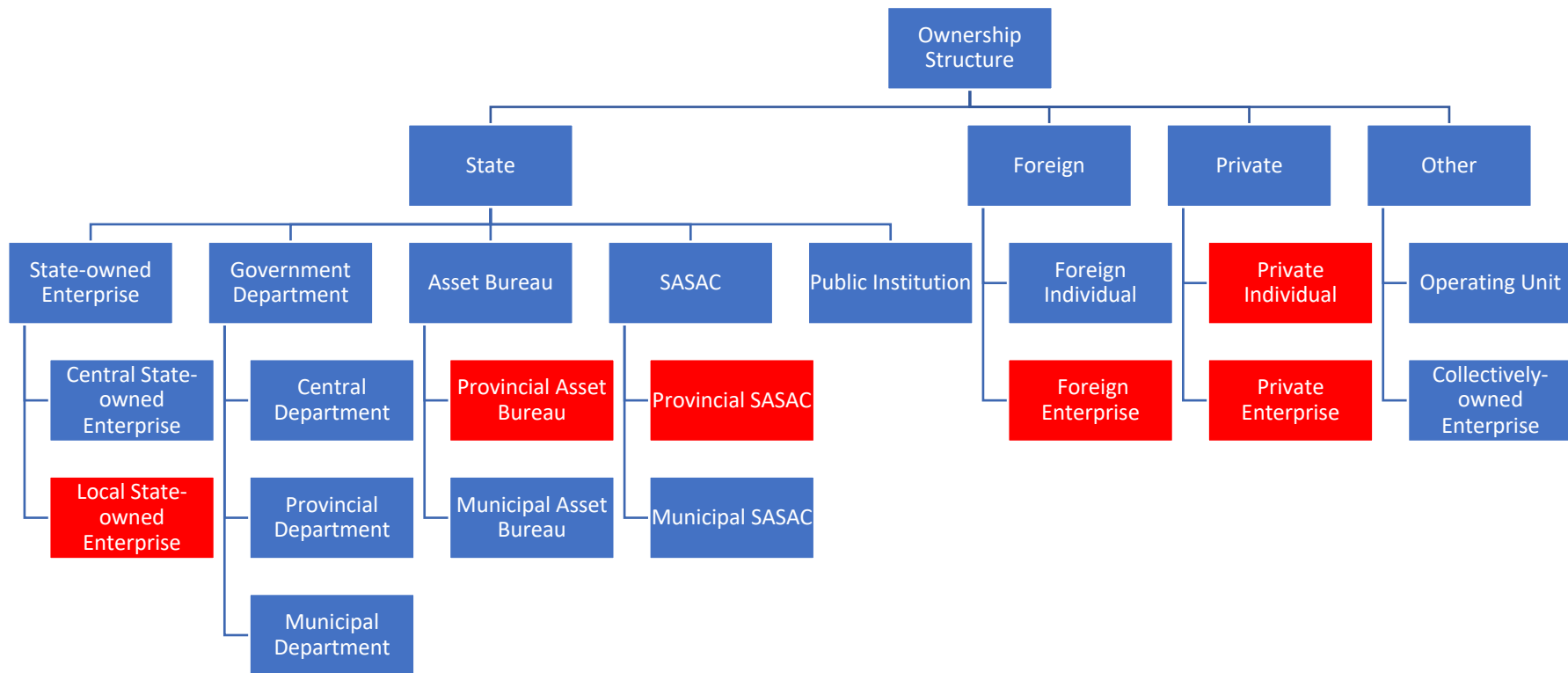


Figure 3.16 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Labour Productivity

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm labour productivity. Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

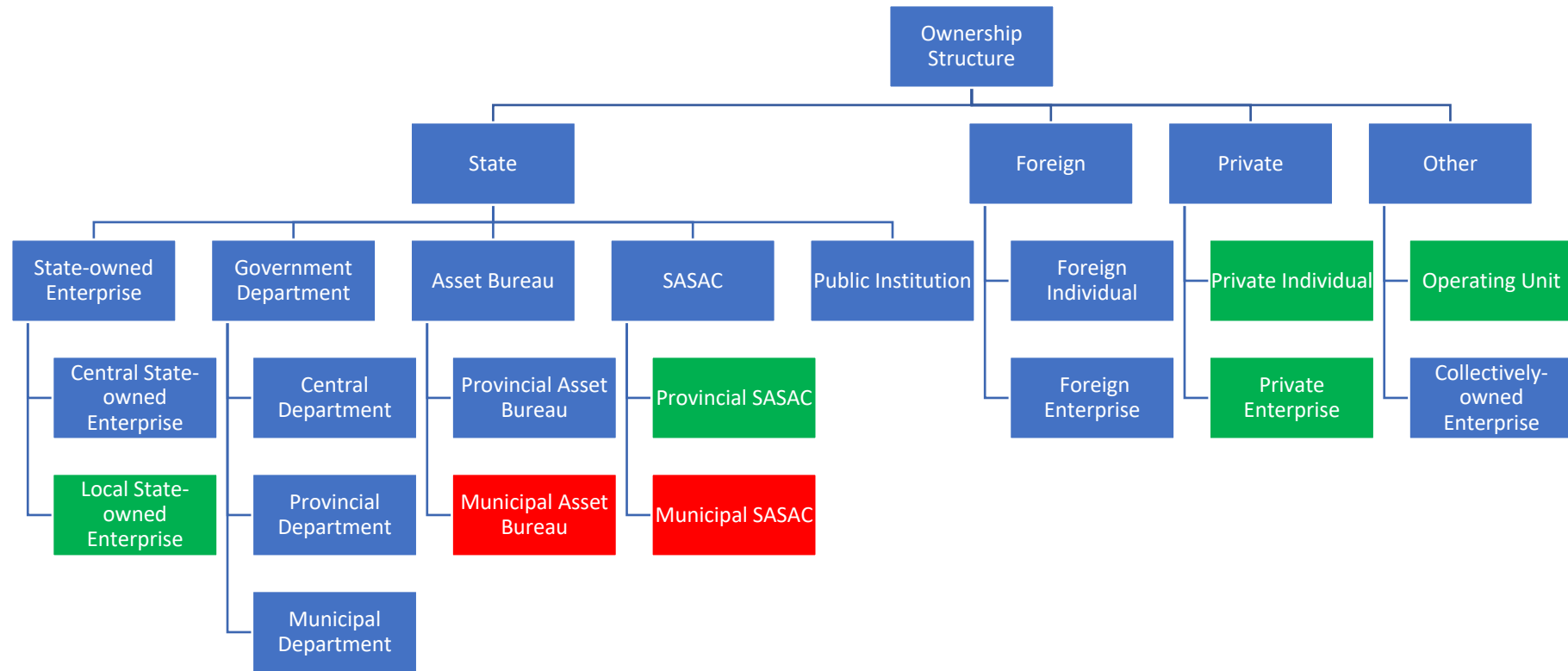


Figure 3.17 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Investment

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm investment. Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

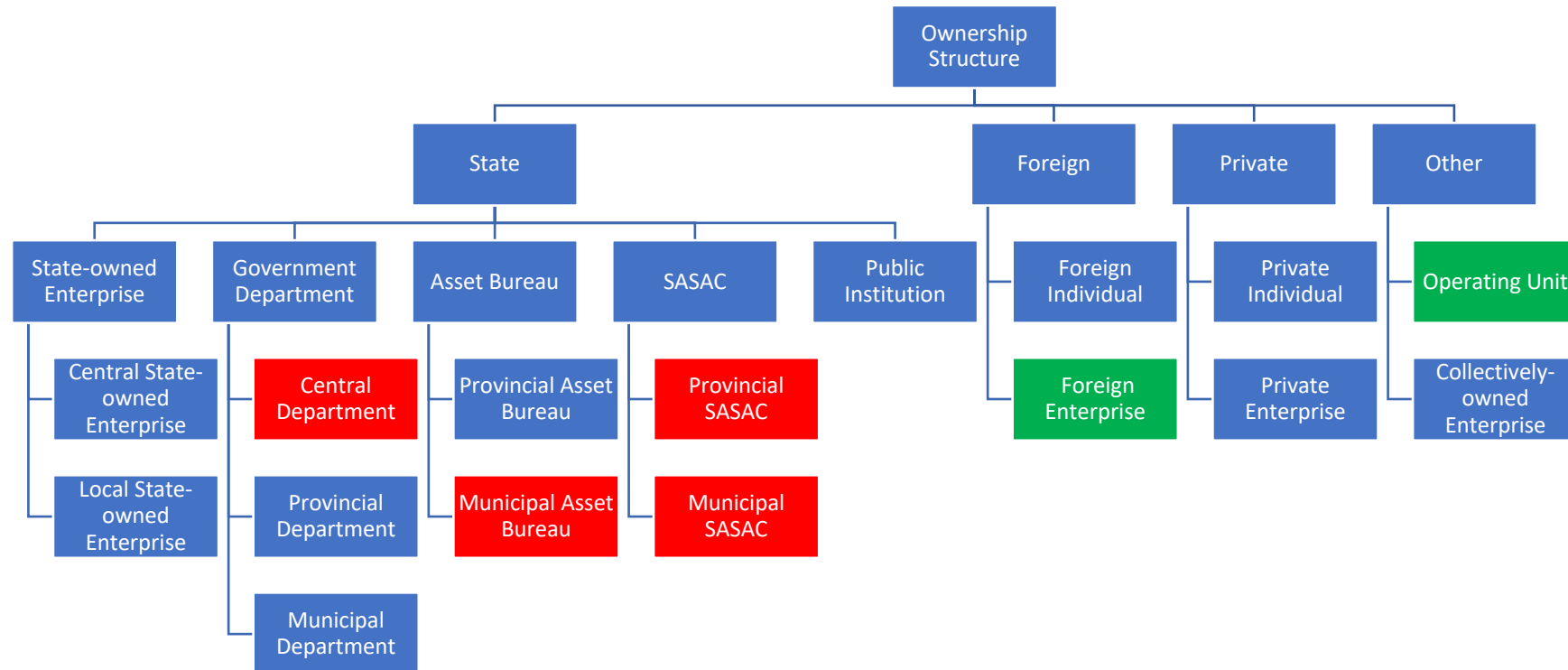


Figure 3.18 The Effects of the Interaction between Different Types of Largest Shareholders and Direct Controlling Ownership on Operating Efficiency

This figure presents the effects of the interaction between different types of largest shareholders and direct controlling ownership on firm operating efficiency. Blue rectangles mean no effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Green rectangles mean positive effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance. Red rectangles mean negative effects of the interaction between different types of largest shareholders and direct controlling ownership on firm performance.

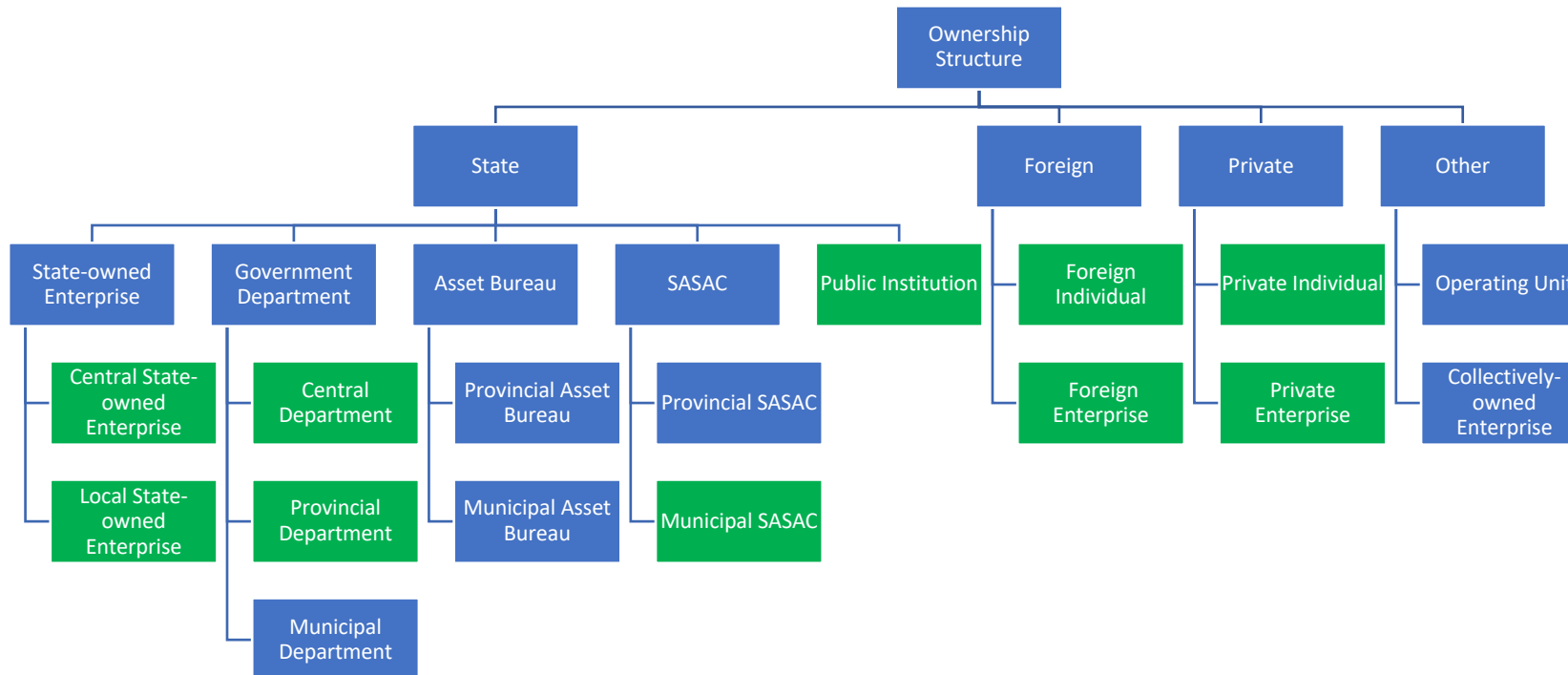


Figure 3.19 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Output

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm output. Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

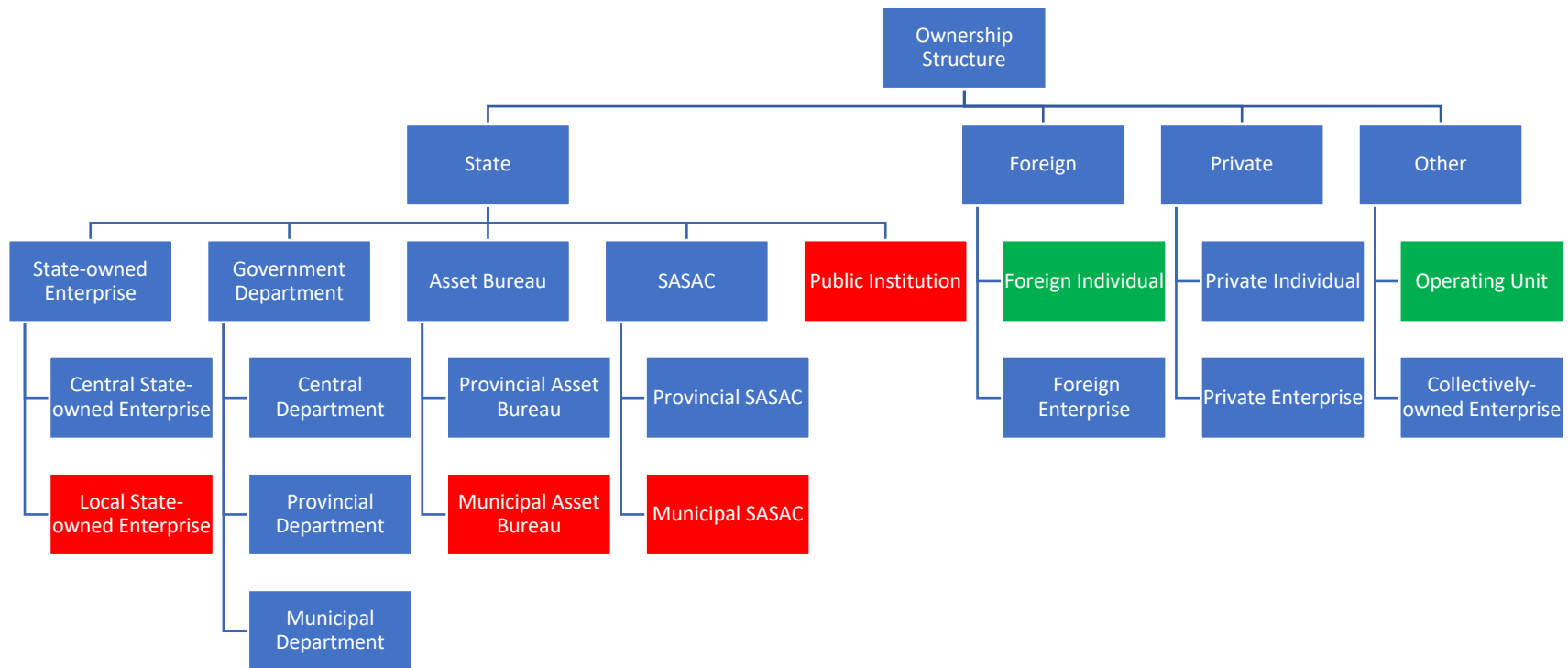


Figure 3.20 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Employment

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm employment. Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

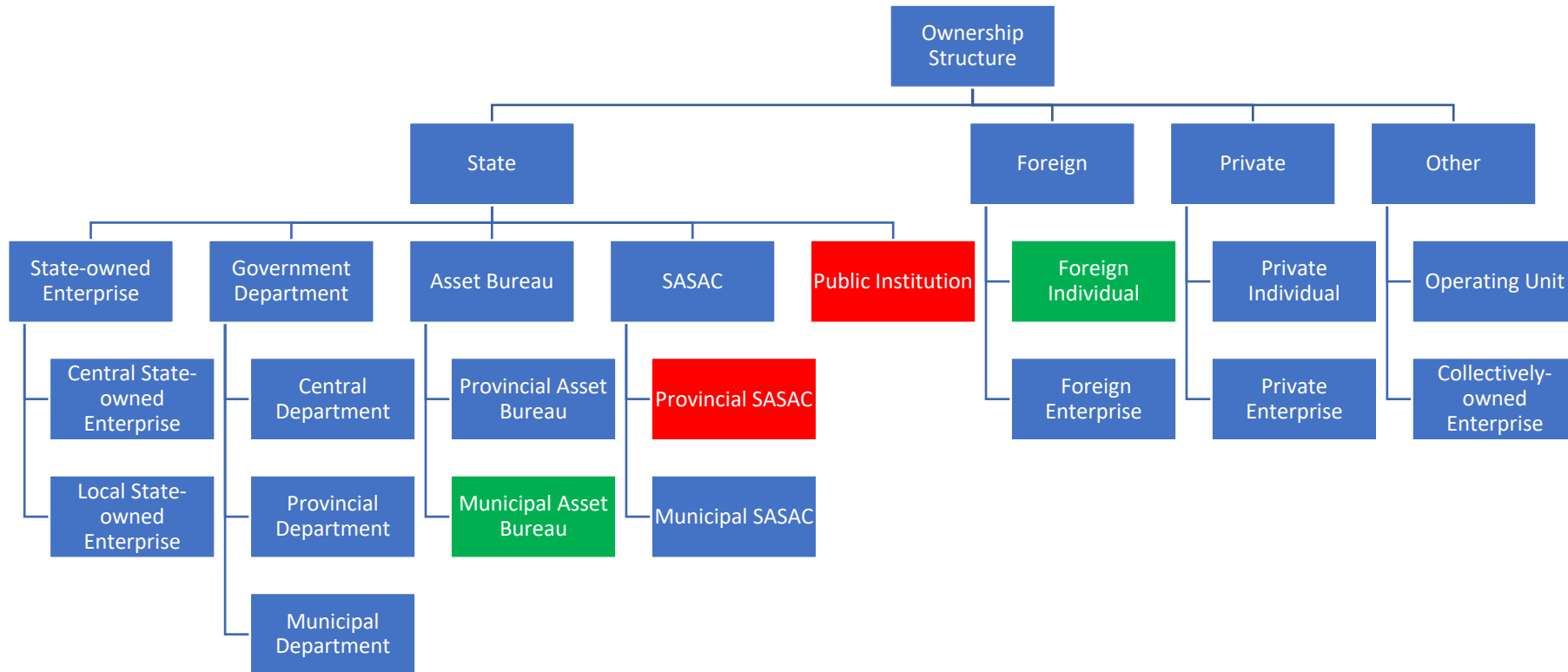


Figure 3.21 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Profitability (ROA)

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm profitability (ROA). Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

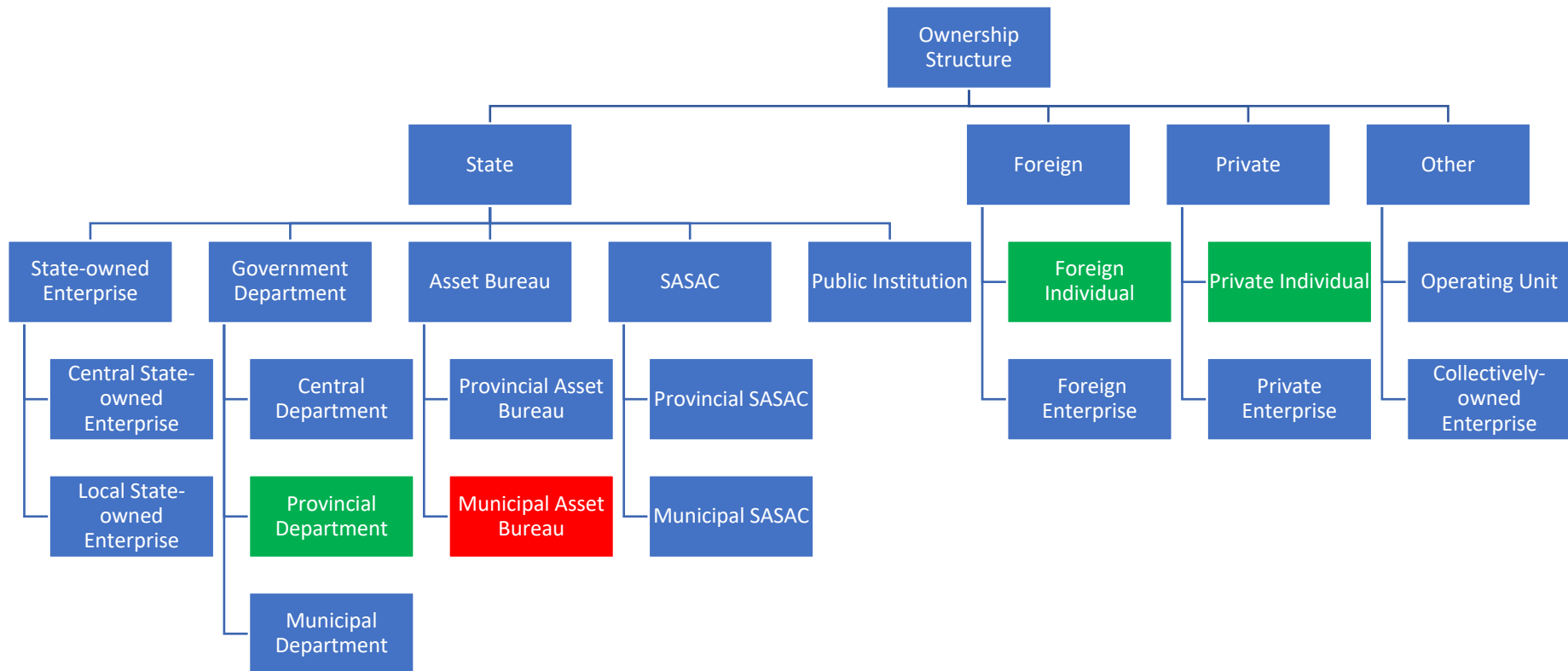


Figure 3.22 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Profitability (Tobin's Q)

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm profitability (Tobin's Q). Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

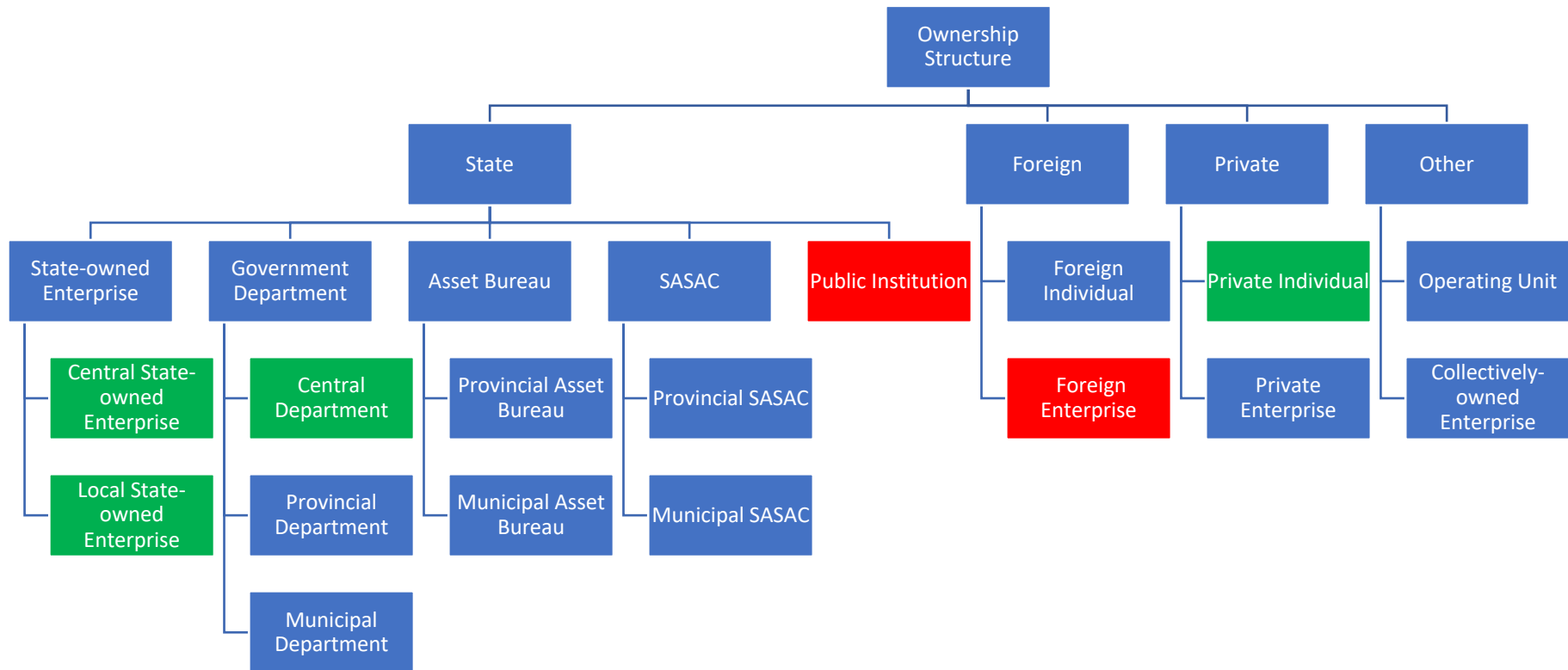


Figure 3.23 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Labour Productivity

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm labour productivity. Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

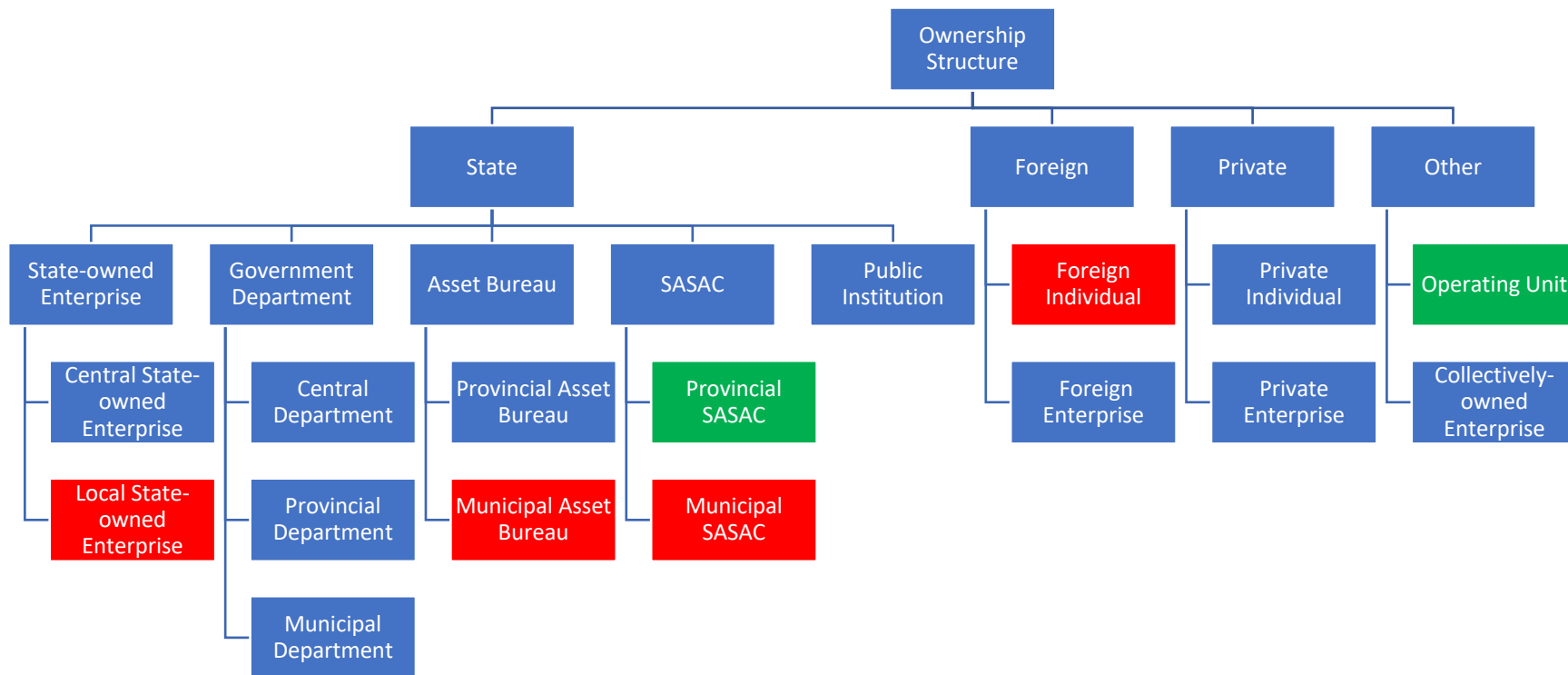


Figure 3.24 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Investment

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm investment. Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.

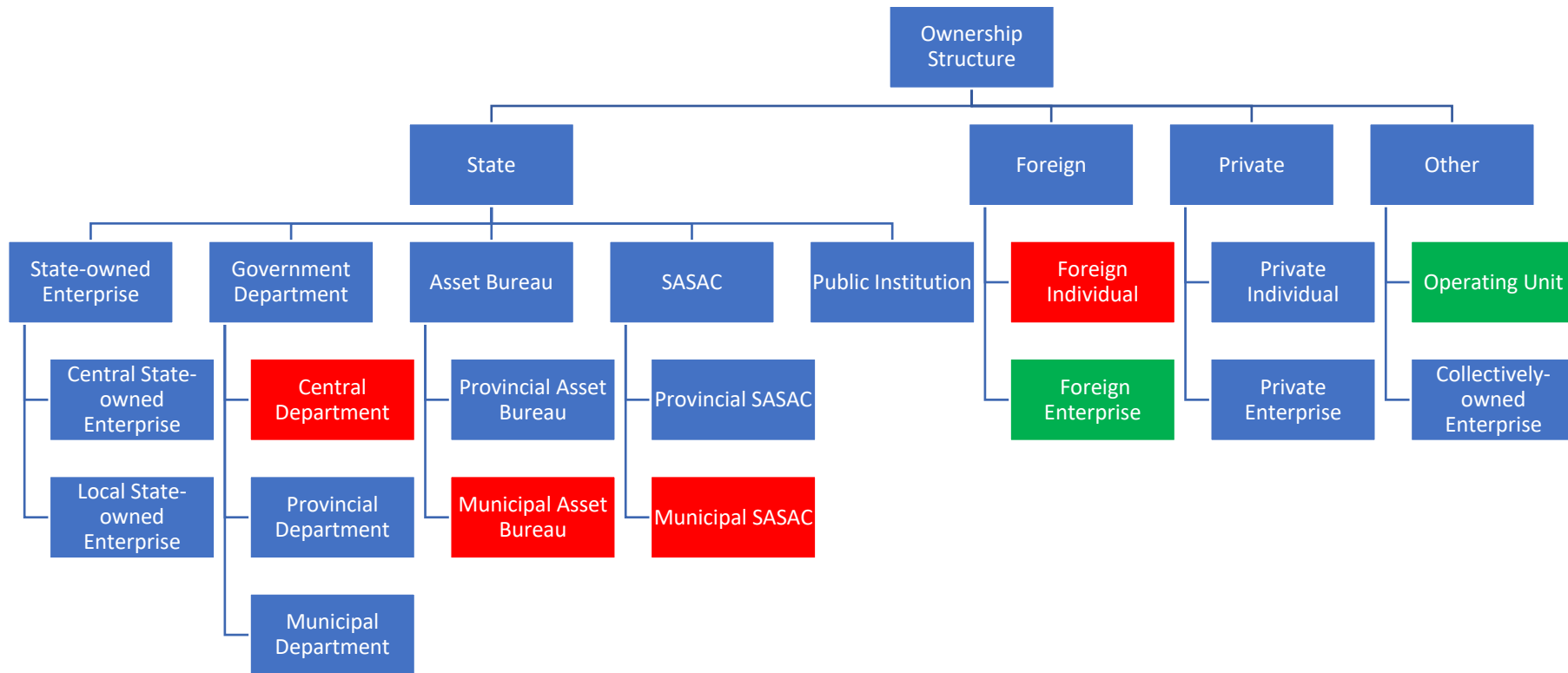
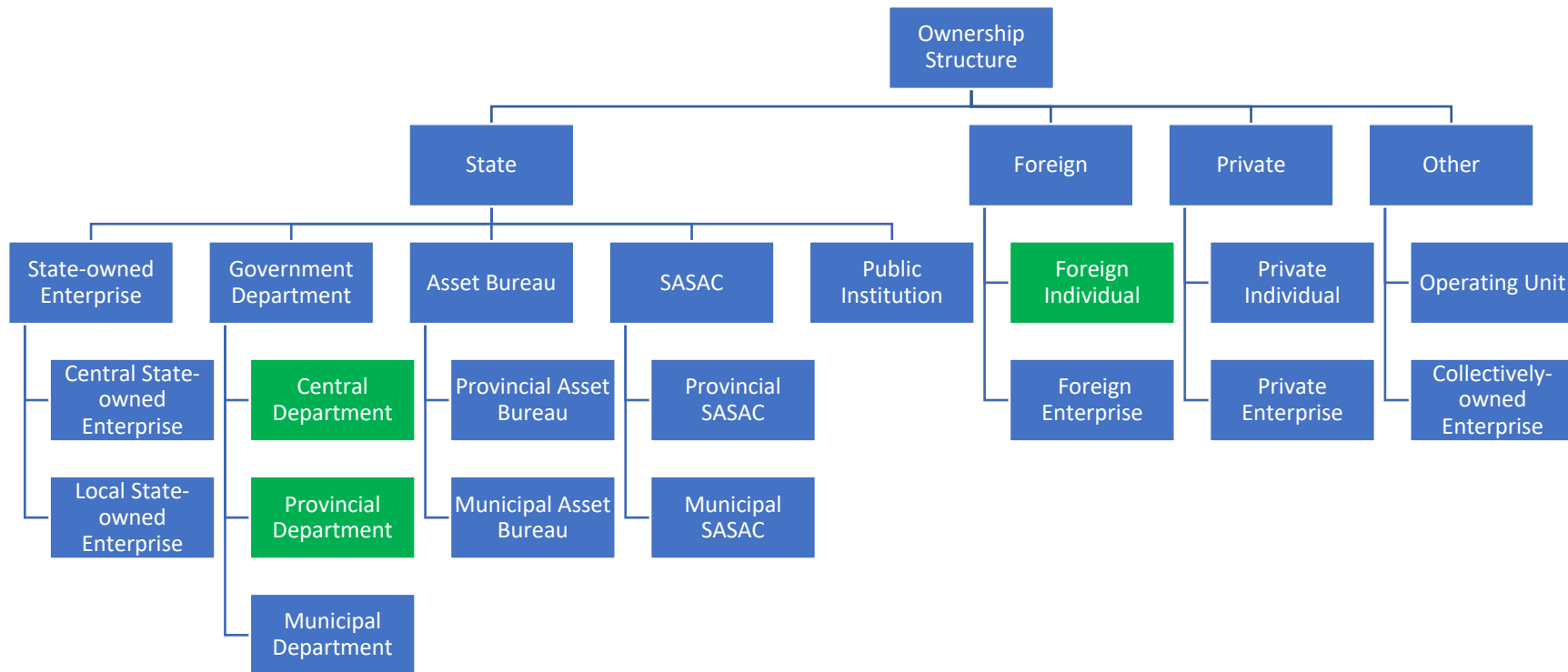


Figure 3.25 The Effects of the Interaction between the Types of Largest Shareholders and the Types Ultimate Controllers on Operating Efficiency

The figure presents the effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm operating efficiency. Blue rectangles mean no effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Green rectangles mean positive effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance. Red rectangles mean negative effects of the interaction between the types of largest shareholders and the types of ultimate controllers on firm performance.



Chapter 4 Admirative Levels and Functions of State Ultimate Control and Firm Performance in China

4.1 Introduction

The state uses the business group to support economic development (Carney, et al., 2018). These state-controlled business groups have financial access to governmental resources and enjoy exclusive privileges, such as monopoly, which are supported by the government in alignment with the public interest (Cuervo-Cazurra, 2006). Colli and Colpan (2016) show that there are also agency conflicts in the state-owned business group. The conflicts exist between the state as controlling shareholder and minority shareholders of the affiliated companies within a group (Colli, 2012a; 2012b). For example, in China, there is no conflict between the controlling shareholders and managers. The management among the Chinese business groups is normally selected by the state controllers rather than elected by the board. They are the representatives of the state and follow the guides from the state. Business groups in China are dominated by a core entity treated as the group owner, which has equity, debt, personnel, and trading connections with affiliate firms (Carney, Shapiro and Tang, 2009). The state business groups in China are significantly influenced by the government. Hu, Cui and Aulakh (2019) demonstrate that the state dominates the economy in China. The one-party legislative system in China determines the control of the most significant industrial sectors by the state. The state implements directive economic policies to achieve social expectations, which are not aligned with individual firms' interests, since the Chinese government prefers the non-profit goals rather than shareholder value and profit maximisation (Boycko, Shleifer and Vishny, 1996). Particularly, the government principally focuses on social missions to guarantee the stable growth of the domestic economy (Walder, 1995). While receiving substantial governmental

support, these firms have the responsibility to fulfil the political and social goals, building political ties with the government (Cheung, Rau and Stouraitis, 2010; Shleifer and Vishny, 1998; Tian and Estrin, 2008). Political connection with government benefit firms in various ways. For example, the central government can directly help firms by providing preferential policies (Tian and Estrin, 2008). But with the help and support from the government, the state-controlled firms have less stress to survive in the market and are consequently less motivated to pursue market orientation (Song, Wang and Cavusgil, 2015). Comprehensive government support decreases the firm's motivation and capacity to be responsive to the market (Porter, 1990), so the support from the government may bring positive and negative influences on the listed firms.

Furthermore, the Board of Supervisors of Key and Large State-owned Enterprises points out that the state-owned enterprises comprise a complex system, involving governments at all levels, multiple departments, central enterprises and local enterprises, a state assets supervision system to supervise enterprises, and other departments and units to supervise enterprises (Ji, 2017). Bai, Lu and Tao (2006) have provided a multitask theory of SOE reform in China. They argue that the interests of government at different level become diverse when the amount of surplus labour increases. Low-level (such as municipality) governments tend to discard the SOEs with surplus labour and debts, which means the SOEs formerly affiliated with the low-level governments still have substantially surplus employees and bad loans. On the contrary, high-level government (such as central and provincial governments) cares more about social stability. They would not permit the privatization of the SOEs leading to labour layoffs and loan write-offs. Therefore, the SOEs affiliated with the provincial or central governments may not suffer a decrease of employment or debts after privatisation. The third plenary session of the 18th CPC Central Committee also emphasised the different capabilities of the state-owned

enterprises (Li, 2014). As the controller principally decides the operation mode of the firms, identification of the roles of SOEs' controllers is necessary. It is worthy of studying how the different forms of governmental agencies, such as asset management bureaus or government departments, and the agencies at different administrative levels affect firm performance.

Following the previous chapters, this chapter studies the impacts of administrative levels and functions of state ultimate control as well as the connections between the state ultimate controller and their controlling ownership on listed firms' performance, to provide a comprehensive investigation on the ownership structure in Chinese listed firms. The previous chapter showed that the direct controlling shareholder, which refers to the largest shareholder, has few effects on the firm performance. This is consistent with Liu and Sun's (2005) discussion that only direct ownership data from listed Chinese firms, on its own, is insufficient to capture the real nature of the controlling shareholder. In this chapter, I hand collect the ultimate controlling ownership from the annual reports of listed firms and investigate the effects of state ultimate controllers on firm outcomes. The chapter contributes to the ownership literature by using ultimate controlling ownership rather than direct ownership to study the ownership within the business groups, because the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2015; Jiang, Rao and Yue, 2015), which applies the direct ownership, cannot accurately reflect the impact of ultimate control within the business groups. Secondly, the chapter follows the previous chapters and uses the new classification to identify the administrative levels and functions of ultimate controllers in state-controlled business groups to study their influence on firm performance, as well as the interaction effects of ultimate controlling ownership on the relationship between state controllers and firm performance. As the continuation of the previous chapter, this chapter also uses both financial performance and non-financial performance to study the effects of the

state ultimate controller on firm performance. Furthermore, the chapter contributes to the literature by providing evidence on the multidimensional nature of the relationship between state ultimate controllers' ownership and firm performance, namely the administrative levels and functions of state ultimate control.

Using the new ownership classification, I categorise the state ultimate controllers into six functions and three administrative levels. To present a comprehensive picture of state ownership in China, I also investigate the internal structure within the state-owned business groups from two aspects, namely the hierarchy between the group controller and the listed firm and control method used by the controller obtaining control rights. I obtain the ownership and performance data from the Chinese Securities Market and Accounting Research (CSMAR) database and manually collect the hierarchy and control method data from firms' annual reports. The sample in this chapter includes 3,077 firms, and 27,077 firm-year observations over the period from 2003 to 2016. The firm performance measures in this chapter comprise output, employment, profitability, labour productivity, investment and operating efficiency. I apply firm and year as the fixed effects to conduct regression analysing the effects of state ultimate controllers on firm performance.

I first study the effects of administrative levels and functions of state ultimate controllers on firm performance and the results show that the SASAC and high administrative-level governmental agencies as ultimate controllers have positive impacts on firm output, the state controllers at Central or Municipal levels as ultimate controllers have positive impacts on firm employment, the state controllers at the Municipal level as ultimate controllers have negative impacts on firm profitability, productivity, and operating efficiency. None of the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and

Zhu, 2013; Liu, Wang and Zhu, 2021) has shown the same findings, as they do not distinguish the state controllers with different functions and at different administrative levels. Then, I study the effects of the interaction between ultimate controlling ownership and state ultimate controllers on firm performance. I find that an increase of ultimate controlling ownership in the state-controlled listed firms can improve on firm productivity and operating efficiency. I also investigate the effects of the interaction between firm hierarchy and state ultimate controllers on firm performance. The results are not consistent across different performance measures. The extension of firm hierarchy could improve the output of SASAC controlled listed firms, the employment of Department, SASAC and SOE controlled listed firms, but also decrease the Tobin's Q of Government, Asset Bureau, SASAC, SOE and Public Institution controlled listed firms. At last, I study the effects of the interaction between control methods and state ultimate controllers on firm performance. When the SASAC obtains control rights from one shareholder, it provides strict supervision of the listed firm and increases high employment and output. For the Department and the state ultimate controllers at Central level, obtaining control rights from multiple shareholders results in higher profitability. The results in the chapter request the regulators to give great attention to the increase of ultimate controllers' controlling power, which can slightly improve the productivity and operating efficiency of state-owned listed firms. Suppose the ultimate controllers, such as SASAC, urge for a boost in firm output and employment. In that case, they need to extend the internal control structure within the business group and centralise the ownership in one large shareholder.

The rest of the chapter is organised as follows. Section 4.2 is the review of literature about state ownership and firm performance outcome in China and presents the research question of the chapter. Section 4.3 describes the data and methodology. Section 4.4 presents the empirical analysis and Section 4.5 concludes the chapter.

4.2 Literature Review

This section reviews the literature about the state-controlled business group and the effects of the state ownership on firm performance and presents the research question of this chapter. The business group is worth studying. First, the business groups are different from and more complex than individual firms because of their complicated relationships within the group (Holmes et al., 2015; Manikandan and Ramachandran, 2015; Yiu, Chen and Xu, 2013). Therefore, the internal control in the business groups necessitates investigations to discover their performance outcomes. Second, the control mechanism of the business groups may have notable impacts on national economic growth, especially state-owned business groups controlling a large proportion of the country's economy (Morck, Wolfenzon and Yeung, 2005). The scholars show that business groups that are owned by the state act from an influential position to achieve political goals (Amatori, 1997; Colli and Vasta, 2015).

4.2.1 State Support for Business Group

The state uses the business group to promote economic development, through domestic reforms and increasing the financial capacity of the large companies (Carney, et al., 2018). These state-controlled business groups have financial access to governmental resources and enjoy exclusive benefits, such as monopoly, which are supported by the government in alignment with public interest (Cuervo-Cazurra, 2006). There are also agency conflicts in the state-owned business group. The conflicts exist between the state as controlling shareholder and minority shareholders of the affiliated companies within a group (Colli, 2012a; 2012b). In China, there is no conflict between the controlling shareholders and managers (Musacchio and Lazzarini, 2014). The management among the Chinese business groups is normally selected by the state controllers rather than elected by the board. They are the representatives of the state and follow the instructions from the state.

According to the National Statistics Bureau of China, a business group comprises legally independent entities that are partially or entirely controlled by a parent firm and recorded as the affiliate firms of that parent firm (Yiu, 2010). Business groups in China are dominated by a core entity treated as the group owner, which has equity, debt, personnel, and trading connections with affiliate firms (Carney, Shapiro and Tang, 2009). Social connections, such as family relations, can also connect the affiliate firms to form business groups in China (Keister, 2000; Luo and Chung, 2005). A business group is different from a multi-divisional firm because its group members are all independent legal entities. It is also distinguished from a network of firms because the parent company has strongly centralised and financial controls over affiliations in the group (Yiu, Lau and Bruton, 2007). The affiliated companies are cross-industry and have strong relationships with the state (Keister, 1998; White et al., 2008). An essential part of the economic reform in China is to transform and restructure state firms into business groups that are competitive in domestic markets (Yiu, 2010). The government chooses the firms to be controlled by the governmental entities and provides political and financial support to form the group's organisational structure.

State-owned business groups in China are significantly influenced by the government. Hu, Cui and Aulakh (2019) demonstrate that the state dominates the economy in China. The one-party legislative system in China determines the control of most significant industrial sectors by the state. The state implements directive economic policies to achieve social expectations, which are not aligned with individual firms' interests. The Chinese government prefers the non-profit goals rather than shareholder value and profit maximization (Boycko, Shleifer and Vishny, 1996). Particularly, the government principally focuses on social missions to guaranteeing the stable growth of the domestic economy (Walder, 1995). The state business groups in China normally engage in industries that are pillars of the national economy or crucial for national

security (Keister, 2000). While receiving substantial governmental support, these firms have the responsibility to fulfil the political and social goals, thus building political ties with the government (Cheung, Rau and Stouraitis, 2010; Shleifer and Vishny, 1998; Tian and Estrin, 2008). Nevertheless, the listed firms can benefit from belonging to state business groups (Qian, 2003; Tian and Estrin, 2008). Political connection with government benefit firms in various ways. For example, the central government can directly help firms by providing preferential policies (Tian and Estrin, 2008). Considering the imperfections in market regulation, the central government's information and direct support (e.g., preferential loans or contracts) deliver considerable advantages to the business groups. Chen (2012) also points out that state-owned companies benefit from obtaining government support. This is because they are treated as close family of the government at every administrative level, while the non-state firms are treated as outsiders. Therefore, affiliation with state business groups represents a positive impact on the listed firms. In transition economies like China, where the market mechanism is still in development and government involvement in economic and business activities remains common, political connections can play an important role that can mitigate the negative effects of market imperfections. With the help and support of the government, the state-controlled firms find it easier to survive in the market and are consequently less motivated to pursue market orientation (Song, Wang and Cavusgil, 2015). The comprehensive government support decreases the firm's motivation and capacity to be responsive to the market (Porter, 1990). Therefore, the firm's market orientation may be limited.

The control structure within the business groups also influences the government support for the firms. As discussed in the previous chapter, the principal, namely ultimate controller, normally builds a structure and achieves control status through pyramids within the business groups. The direct controlling shareholder (agent) is the bottom of the pyramid, with the middle

management companies (manager) and ultimate controller (principal) further up. There may exist one or more companies between the ultimate controller and the direct controlling shareholder. The literature shows the hierarchical structure in listed firms in China (Lee, 2001; Hassard, Morris and Sheehan, 2002; O'Connor, Deng and Luo, 2006; Brickley, Smith and Zimmerman, 2001; Christie, Joye and Watts, 2003). Lee (2001) studies the financial conditions of a Chinese SOE under economic reform and shows that the organisation in China is highly hierarchical. The control is centralised at the top. The multi-layer communication leads to loss of information and results in ineffective monitoring and control. Hassard, Morris and Sheehan (2002) explore some of the political and organisational SOE reforms and point out that all state-owned enterprises aimed for vertical integration. Since the early 1990s, the steel companies have re-distributed their business and formed a system consisting of a parent company with subsidiary firms. The subsidiaries in the core business keep a close relationship with the parent company and enjoy management autonomy. Other subsidiaries, which are not engaged in the core business, have more autonomy. These autonomous sub companies aim at bearing some responsibilities for the enterprise group, such as providing access to capital and absorbing surplus labour from the core businesses companies. Hassard, Morris and Sheehan (2002) observe that the parent company still maintains significant influences over its subsidiaries regardless of regulations. One of the main methods by which the government controls SOEs is appointment of personnel. Political restrictions on personnel appointment in SOEs occur through various political regulations and government representatives (O'Connor, Deng and Luo, 2006). The management and supervision at the higher levels have significant influence over organisational design, monitoring managers and performance evaluation (Brickley, Smith and Zimmerman, 2001). Christie, Joye and Watts (2003) argue that managers at lower levels who have decision-making rights can decrease the information transfer cost.

The hierarchy in the business group refers to number of the control layers from the controlling shareholder to the ultimate controller. The hierarchy represents the complexity of the organisational structure and, to a certain extent, the degree of agency cost. A moderate extension of the hierarchy is beneficial to enterprise efficiency, because it can prompt a separation between the company's management and the government's administrative intervention, leaving the management to competent and professional managers. This can promote the development of enterprises and improve the efficiency of enterprise management. Moreover, the internal capital market between the ultimate controller and direct controlling shareholders is advantageous to the optimised configuration of the enterprise resources. Therefore, the extension of hierarchy increases the efficient frontier of the enterprise, provides higher investor protection expectations, attracts investors and diversifies the equity structure. However, the extension of hierarchy can have negative effects. On one hand, it will raise the cost of information transfer and supervision, be adverse to the control of the enterprise, and make it harder to restrain managers from perusing private benefits. On the other hand, the ultimate controller can take advantage of the complex organisational structure of internal capital markets and damage the interests of small investors. The ultimate controller may consciously extend the hierarchy to hide identity and wealth from regulation. In this situation, the extension of hierarchy may lead to lower expectations of investor protection. The investors then give up or reduce the investment in the enterprise. Equity will be concentrated in the hands of the controlling shareholders. The relation between the hierarchy of the equity structure and the degree of equity concentration depends on the types of ultimate controllers. The preferences and objectives of ultimate controllers vary with their identities, affect the formation and effect of each hierarchy, and further influence the degree of equity concentration.

For government and its agencies, the extension of hierarchy is beneficial to the separation between the government's administrative intervention and the company's management. The operation and management are entrusted to professional managers to improve the company's efficiency. This is the original intention of the Chinese government to implement state-owned enterprises reforms and establish a multi-level management system of state-owned assets. Besides the supervision and management of the state-owned enterprises, the government has to implement economic development strategies and achieve tax, employment, social stability and other targets. The government can use the state-owned enterprises to help complete these tasks through administrative interventions. In this way, the government maintains the control rights of listed firms and also improves enterprise performance. For state-owned business groups, the parent company, middle companies and the listed firms comprise the internal capital market. The extension of hierarchy not only relaxes the financing constraints and strengthens the functions of internal resource allocation, but also provides convenient conditions for the ultimate controller to transfer profits at low cost. The ultimate controller can obtain control rights with little cash investment under the multi-level structure. The absence of strict legal supervision mechanism and investor protection mechanism can result in the moral hazard problem of ultimate controllers.

The diversified internal structure is also pursued by the state-owned business group. Nolan (2014) discusses that many state-owned firms in China were directed into diversification rather than investing in their core business, to avoid competition with the global corporations. As a result, the core of China's industrial policy has been preferential to state ownership in strategic industries, as well as state control over essential personnel appointments and critical operational decision-making. Colli and Colpan (2016) discuss that lower entities of a pyramid are used to diversify the group's businesses, making it difficult for outside investors to be

involved in activities inside the group, and act as a device to expropriate minority shareholders. The restrictions on the capital outflows encourage domestic firms to adopt a diversified business group structure. This chapter shows the state business group structure becomes diversified as the ultimate controller now prefers to control the listed firm through multiple entities rather than one entity as in the past.

There are several reasons that the ultimate controller controls the listed firm through multiple entities. Firstly, the ultimate controllers crave maintaining the control rights of the listed firm when introducing outside investors. The Split Share Reform in 2005 transferred the non-tradable shares, which were held by the state, into tradable shares. During the reform, the proportion of shares held by the state largest shareholders was unavoidably lessened. There were no concrete plans for the transmission of the non-tradable shares from the regulators. From the point of practice, the widely used methods included donation, put warrant etc (China Merchants Bank Website, 2006). The shares held by state largest shareholders were either sold or donated to other shareholders. To avoid dilution or loss of the control rights of the listed firms, the ultimate controller might assign its subsidiary to repurchase the shares of the listed firm, so that the total voting rights obtained by the ultimate controller from both largest and non-largest shareholders are unaltered. Another case is that the largest shareholder does not have enough capital or wish to invest in the listed firm. To avert the loss of control rights, another subsidiary of the ultimate controller provides capital for investment and becomes the shareholder of the listed firm. Secondly, the ultimate controller re-distributes the resources within the control structure. The ultimate controller may expect to strengthen the power of a subsidiary, in order to achieve particular purposes such as access to bank credit. A part of the shares of the largest shareholder is transferred by means of capital injections or selling to the subsidiary. Thirdly, the ultimate controller reduces risk by assigning multiple subsidiaries to

hold the shares of the listed firm. The subsidiary company is an independent legal person. Civil liability shall be borne by the subsidiary. Even bankruptcy will not affect the parent company's financial affairs, so with more subsidiaries acting as the shareholders of the listed firms, there is less risk for the ultimate controller. Fourthly, financing methods become diverse. Some subsidiaries may finance through a life insurance company, leverage, or equity pledge. Subsidiaries could raise capital more easily based on its own business. At last, state-owned capital investment and operation companies are necessary and requested during the state-owned enterprise reforms. Central Economic Working Conference clearly stated, when outlining key tasks in 2019, “speeding up the change from managing companies to operate capital, reorganising the state-owned capital investment company and forming a batch of state-owned capital operating companies” (SASAC Website, 2019). The state-owned capital investment and operation companies are wholly state-owned companies established within the authority of the state. They are the professional platforms for the operation of state-owned capital, perform state investors’ duties and help reduce government intervention. In practice, the ultimate controller sets up the state-owned capital investment or operation company as its subsidiary. This subsidiary may be assigned as a shareholder of the listed firm along with the largest shareholder, holding shares on behalf of the ultimate controller. To sum up, many ultimate controllers obtain the control rights from multiple entities, which implies that the internal structure becomes more diversified. The changes show that the ultimate controller within the business group wishes to retain the control rights of the listed firms, re-distributes resources, reduces risks, diversifies financing methods and improves firm performance. With the diversified structure, the resources are expected to be equitably distributed, so that risks are reduced, and firm performance is improved.

4.2.2 State Ownership and Firm Performance

In China, government support is principally provided for state-owned companies because the government relies on these companies to pursue social objectives (Lee, Walker and Zeng, 2014). On the one hand, the companies dominate industries that are associated with state interests (Inoue, Lazzarini and Musacchio, 2013; Boyd and Solarino, 2016). Supporting the state-owned companies helps to moderate market imperfections (Schwartz and Clements, 1999) and contributes to a sound market environment for all firms in the economy (Bai et al., 2000). On the other hand, the government uses the control power to force these state-owned companies to absorb excess employment, maintaining social stability (Shleifer and Vishny, 1998; Tian and Estrin, 2008). Previous research shows that about a third of the employees in Chinese SOEs are not needed (Zhang and Liu, 2020). Boycko, Shleifer and Vishny (1996) argue that excess employees who satisfy the state's requirement to maintain employment levels are the main reason for state-owned companies' inefficiency. Therefore, state ownership can have either a positive or negative effect on firm performance.

The literature has investigated the relationship between state ownership and firm performance in China. Sun and Tong (2003) estimate the performance changes in SOEs regarding the share issue privatisation from 1994 to 1998. They find that SOEs' performance, including profitability, productivity and sales, is improved by privatisation. The results also show that state ownership is negatively related to firm performance and legal person ownership has a positive effect on firm performance. Wei, Xie and Zhang (2005) show that state shares are significantly negatively related to firm performances by investigating a sample of Chinese listed firms from 1991 to 2001. They mainly study three types of concentrated ownership: state, legal person and foreign, and they also use the share types discussed in the previous section to classify the ownership structure. Firth, Lin and Zou (2010) study the roles played by state and

mutual funds shareholders in the Split Share Reform from 2005. The results show state shareholders have greater incentives to promote the reform than institutional shareholders. Liao, Liu and Wang (2014) also study the Split Share Reform in China. They show that the SOEs experience a quicker boost in output, profit, and employment than the non-SOEs. Chen et al. (2008) investigate performance changes in Chinese listed firms when there is an ownership transfer in the controlling shareholder, from 1996 to 2000. They conclude that firm performance is positively improved when the control is transferred to a private entity. The results imply that private control is more beneficial to the firms than state control. Cull et al. (2015) study the role of firms' government connections in determining the degree of financial constraints of the firms in China. The findings imply that government connections are related to financial constraints and large non-state firms with weak government connections face more financial constraints.

Chen et al. (2011) compare investment efficiency between SOEs and non-SOEs. They find that the sensitivity of SOEs investment opportunities is significantly weaker than the non-SOEs. The findings suggest that government intervention in SOEs through majority state ownership decreases investment efficiency. Jiang, Rao and Yue (2015) show that state-owned controlling shareholders are less likely to expropriate minority shareholders through non-operational fund occupancy. Zhang and Liu (2020) show that compared to non-SOEs, SOEs in China have a higher tendency to use finance leases rather than operating leases. The SOEs' preference for finance leases is driven by their executives' desire for compensation, promotion and subsidies, which are determined by the government. The literature about the effects of state ownership on firm performance outcomes cannot reach agreement. This is due to the variety of objectives and motivations of various governmental agencies.

4.2.3 Research Question

There are gaps in the literature. Firstly, the state ownership in previous literature (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021) has been broad without distinguishing between the various types and layers of the state. Secondly, the control structure employed by controlling shareholders, within which one company controls another, comprises a set of control chains. The shares, directly or indirectly, are owned by the ultimate dominant shareholder. La Porta et al. (1999) discuss that the direct ownership data from the listed firms is not sufficient to show the accurate control power in these firms, and tracing the ultimate shareholding is crucial to understanding the control structure of the listed firms. Liu and Sun (2005) also show the significance of tracing the ultimate shareholding structure when studying firms in China and argue that only the direct ownership data from listed Chinese firms alone is insufficient to capture the real nature of the controlling shareholder. Therefore, it is crucial to use the concept of ultimate controlling ownership rather than direct ownership when investigating ownership in China.

The Figure 4.1 helps to present the differences between direct ownership and ultimate controlling ownership. Firstly, direct ownership, which is represented in the orange squares, is the ownership used by the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015). Direct ownership of the large shareholders in the listed firms includes both the shares owned and not owned by the shareholders related to the ultimate controllers. From the perspective of business groups, the ultimate controller cannot exercise the rights of the shares which are not owned by them (directly or indirectly). Therefore, using the direct ownership to estimate its effect on firm performance may lead to inaccurate results. Secondly, the type of large shareholder may be state, private or foreign, but the ultimate controllers who

exercise the rights of these shares could be any type in the new classification. For example, if the ultimate controller of a listed firm is Central SASAC, the shares of the shareholder which is related to the Central SASAC can be private shares. No matter what types of shares are owned the shareholders, the rights of these shares are ultimately exercised by the Central SASAC. In this chapter, I use ultimate controlling ownership rather than direct ownership to estimate the relationship between state ownership and firm performance. Also, to present a comprehensive picture of the state ownership in China, I investigate two aspects of the internal structure of state-owned business groups: the hierarchy and control methods in the listed firms.

Insert Figure 4.1

The chapter first contributes to the ownership literature by hand collecting the ultimate controlling ownership data to investigate the effects of state ultimate controllers on firm performance outcomes. The previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010; Chen et al., 2015; Jiang, Rao and Yue, 2015) uses the direct ownership and cannot accurately reflect the impact of ultimate control within the business groups. Secondly, the chapter follows the previous chapter and uses the new classification to identify different types of the ultimate controllers in state-controlled business group to study their influence on firm performance, as well as the interaction effects of ultimate controlling ownership on the relationship between controllers and firm performance. As a continuation of the previous chapter, this chapter also uses both financial performance and non-financial performance to study the effects of the state ultimate controller on firm performance.

4.2.4 Hypotheses Development

With the increase of state-owned equity, high administrative-level governmental agencies as ultimate controllers are supposed to increase firm output. The state-owned equity of the listed firms measures the extent to which the ultimate controllers' control the listed firm. As a

representative to operate state-owned assets, the government shoulders the responsibility of increasing the value of state-owned assets and pays attention to the operation of the state-owned enterprises. When the control power grows, the government provides help and support to the state-owned enterprises. The supports include preferential tax policies, preferential loans policies, bank financing facilitations, financial subsidies, industry access permission, etc. The enterprises controlled by the high administrative-level governmental agencies are expected to make significant contributions to the domestic economy. Therefore:

H_{3a} An increase in the ultimate controlling ownership of the ultimate controllers in the high administrative-level governmental agencies-controlled listed firms can improve the firm output.

State-owned enterprises undertake many social functions, which leads to redundant staffs and inefficiency. A rational government should balance the negative effects of political interference and positive effects of supervisory management, especially when the shareholdings of the government entitle it to absolute control power over the listed firms, as the government then has more incentive and ability to provide effective monitoring of the enterprise. Therefore, the state controllers undertake measures, such as decreasing the number of unnecessary employees, to improve firm efficiency and productivity.

H_{3b} An increase in the ultimate controlling ownership of the ultimate controllers in the state-owned listed firms can decrease firm employment.

The government's operation and management of state-owned enterprises are enhanced with the increase of state-owned equity. The government is an important subject in the state-owned assets management chain, supervising state-owned assets operation and management. The

government believe that its supervision of state-owned enterprises could help improve firm performance. The administrative authority by the government has significant deterrent effect on the managers of the listed firms. Under the principles of justice, in accordance with the law and regulation, the supervision of the government is more effective than the enterprise internal supervision or social supervision. Effective supervision can reduce the defects in enterprise management and prevent the loss of state-owned assets caused by pursue self-interest among the enterprise management.

H_{3c} An increase in ultimate controlling ownership of the ultimate controllers in the state-owned listed firms can improve firm profitability.

Moreover, the government provides policy support to state-owned enterprises. Government either provides direct monetary support or the ability for financing to the state-owned enterprises, or gives them the monopoly position or the market competition power in the industry, which has positive effects on the daily operation of state-owned enterprises, technology innovation, the expansion of investment, and the gaining of a competitive edge. State-owned enterprises and the government have an unbreakable relationship. The state as a special shareholder will deliver more beneficial governance, such as political support and protection, to the enterprise where the state owns more shares and related interests. Also, with less employees, the labour productivity of state-controlled listed firms would be improved.

H_{3d} An increase in the ultimate controlling ownership of the ultimate controllers in the state-controlled listed firms can improve on firm productivity, including operating efficiency and labour productivity.

To sum up, direct ownership, as used in the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015) is insufficient to capture the real nature of the controlling shareholder. Tracing the ultimate shareholding is crucial to understand the control structure in the listed firms. This chapter contributes to the ownership literature by hand collecting the ultimate controlling ownership data, to investigate the effects of state ultimate controllers on firm performance outcomes, rather than the direct ownership. Also, this chapter follows the previous chapter in using the new classification to identify different functions of the ultimate controllers in state-controlled business group to study their influence on firm performance, as well as the interaction effects of ultimate controlling ownership on the relationship between controllers and firm performance. This chapter also uses both financial performance and non-financial performance to study the effect of the state ultimate controller on firm performance.

4.3 Data and Methodology

This section shows the sample used in this chapter, ownership variables as the independent variables, performance measures as the dependent variable, the control variables and provides a summary description of the data set.

4.3.1 Sample

The ownership data in this chapter is following that of previous chapter, which is obtained from the CSMAR database. After deleting the firms in the financial industry, merged or deactivated firms and the firm-year observations of enterprises whose ownership data is missing, the final data set includes 3,077 firms, and 27,077 firm-year observations covering the period from 2003 to 2016.

4.3.2 Ownership Classification

I use the ownership classification in the previous chapter to identify the state ultimate controllers in the listed firms of China. First, I classify the state ultimate controllers based on their administrative levels: central, provincial, and municipal. Accordingly, I further classify state ultimate controllers into six categories based on their functions: SASAC, Asset Bureau, Government Department, State-owned Enterprises, Government and Public Institution.

The control structure model proposed in the previous chapter shows that there is a set of control chains within the business groups. With the control chains, the ultimate controlling shareholder can exercise the control rights of the listed firms and further affect firm decisions. The complexity of the control chains may also influence firm performance, such as increasing information transfer cost or reducing firm risk through a diversified structure. It is crucial to use the concept of ultimate controlling ownership rather than direct ownership when investigating ownership in China (La Porta et al., 1999; Liu and Sun, 2005). The new classification helps to distinguish the types of administrative levels of state ultimate controllers, which have not been investigated in previous literature (Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). The control structure model shows that direct ownership, used in previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010; Chen et al., 2015; Jiang, Rao and Yue, 2015) cannot accurately reflect the impact of ultimate control within the business group. Instead, it is worth studying the impact of ultimate controlling ownership on firm performance. I also investigate the internal structure within the state-owned business groups from two aspects, namely the hierarchy and control method in the listed firms. The measures of hierarchy and control methods within the business groups are described in the next section.

4.3.3 Ownership Variables

I use six dummy variables to represent the categories of state ultimate controllers, namely

Dummy.SASAC equals 1 when the ultimate controller of the listed firm is a SASAC, otherwise 0;

Dummy.AssetBureau equals 1 when the ultimate controller of the listed firm is an Asset Bureau, otherwise 0;

Dummy.Government equals 1 when the ultimate controller of the listed firm is the Government, otherwise 0;

Dummy.Department equals 1 when the ultimate controller of the listed firm is a Department, otherwise 0;

Dummy.SOE equals 1 when the ultimate controller of the listed firm is a SOE, otherwise 0;

Dummy.PublicInstitution equals 1 when the ultimate controller of the listed firm is a Public Institution, otherwise 0.

I use three dummy variables to identify the three administrative levels of state ultimate controllers, namely

Dummy.CentralLevel equals 1 when the ultimate controller of the listed firm is at central level, otherwise 0;

Dummy.ProvincialLevel equals 1 when the ultimate controller of the listed firm is at provincial level, otherwise 0;

Dummy.MunicipalLevel equals 1 when the ultimate controller of the listed firm is at municipal level, otherwise 0.

The ultimate controlling ownership is manually collected from the financial reports of listed firms from 2003 to 2016. Listed firms' financial reports are available from the official websites

of Shanghai Stock Exchange and Shenzhen Stock Exchange. Annual reports represent corporate communications which are examined in previous research (Abrahamson and Hambrick, 1997). For the listed firms in China, the annual report is the most essential means of self-disclosure and the appropriate channel to announce and deliver strategic information (Song et al., 2015). Following La Porta, Lopez-de-Silanes and Shleifer (1999), I trace the control chain to find out the ultimate controller of listed firms and use the voting rights to represent their ownership. I record the shareholders that are related to the ultimate controller and the proportion of shares held by the shareholders. Then I calculate the sum of the proportion of shares held by the shareholders that are related to the ultimate controller and record the sum as *UltimateControllingOwnership*. This chapter focuses on the ultimate controlling ownership rather than the separation between ownership and cash flow rights, to study the effects of ownership concentration of ultimate controllers on firm performance, as the Firth, Fung and Rui (2006) discuss that state agencies normally have few cash flow rights, and pay-outs often have to be forwarded directly to the governments. The objectives of state-controlled firms are to follow the instructions of the central or local governments and to maintain employment levels rather than maximize the value of the firm. The officials in most state-controlled firms are from the government and have little or no professional knowledge about the firm or how to operate it, and no rights to select other top executives (Zhang, 1998). The evaluation of their performance depends on the degree to which social tasks are accomplished rather than the firms' market-based indicators, such as stock return which have no direct link to a controlling shareholder's wealth (Cao, Pan and Tian, 2011). Firth, Fung and Rui (2006) show that cash flow rights in the state-controlled firms do not appear to affect the pay-performance relationship. They conclude that these firms do not really have cash flow rights because they must remit earnings back to their upper authority. Based on this argument, this chapter uses the

voting rights of the ultimate controllers to investigate the effects of ultimate controllers' control power on firm performance.

UltimateControllingOwnership is the sum of the proportion of shares held by the shareholders related to the ultimate controller.

I record the hierarchy within the business group of the listed firms. There may be several control chains in a listed firm. To reduce the information transmission and supervision cost, the ultimate controllers tend to choose the shortest chain to send instructions and collect information. Therefore, I record the number of entities between the listed firm and ultimate controller in the shortest control chain. If there is no entity between the listed firm and the ultimate controller, it would be difficult to examine how the hierarchy affects the effects of ultimate controller on firm performance, since zero eliminates independent variables. So, I use the number of entities between the listed firm and ultimate controller in the shortest control chain plus one as the *Hierarchy*.

Hierarchy is the number of entities between the ultimate controller and listed firm plus one in the shortest control chain.

I also record the methods through which the ultimate controller obtains control rights. There are three methods available, namely only through the largest shareholder, only through the non-largest shareholders, or through both the largest and non-largest shareholders. I use three dummy variables to represent the control methods. They are:

ControlMethod.A is a dummy variable which equals 1 when the ultimate controller obtains control rights only through the largest shareholder, otherwise 0;

ControlMethod.B is a dummy variable which equals 1 when the ultimate controller obtains control rights only through the non-largest shareholders, otherwise 0;

ControlMethod.C is a dummy variable which equals 1 when the ultimate controller obtains control rights through both of the largest and non-largest shareholders, otherwise 0.

As a continuation of the previous chapter, I use the ultimate controlling ownership rather than the direct controlling ownership to study the effects of state ultimate controllers on firm performance. I also investigate the potential effects of internal structure within the state-owned business groups from two angles: the hierarchy and the control method between the group controller and the listed firm.

4.3.4 Firm Performance Variables

Following on from the previous chapter, I include various firm performance measures in this chapter, including firm output, firm employment, firm profitability, firm labour productivity, firm investment and firm operating efficiency. I obtain the performance data from the financial reports of the listed firms.

Following the study of Liao, Liu and Wang (2014), I use the *Logarithm of operating revenue* to measure the firm output and the *Logarithm of the number of employees* to measure the firm employment.

Following Sun and Tong (2003) and Liao, Liu and Wang (2014), I adopt ROA as a proxy for profitability. I calculate ROA as *Net profits / Average total assets*, where *Average total assets*

= $(\text{Total assets of the start of this year} + \text{Total assets of the end of this year}) / 2$). Following Wei, Xie and Zhang (2005), I calculate Tobin's Q as $(\text{Market value of Equity} + \text{Book Value of Debt}) / \text{Book value of assets}$. Where $\text{Book Value of Debt} = \text{Notes Payable} + \text{Current Portion of Long-term Debt (Non-current liabilities due within one year)} + \text{Long-term Debt}$; $\text{Book Value of Asset} = \text{Total Asset} - \text{Net Intangible Assets} - \text{Net Goodwill} - \text{Total Liabilities}$ and use it as another profitability measure.

Following the study of Liao, Liu and Wang (2014), I use *Logarithm of operating revenue per employee* as a proxy for labour productivity.

Following the study of Liao, Liu and Wang (2014), I employ *Logarithm of capital expenditure (measured as change in gross property, plant, and equipment plus change in intangible assets)* as a proxy for investment.

Furthermore, it is anticipated that long-term protection from the government leads to low efficiency in state-owned listed firms. To estimate whether the state ultimate controller decreases firm efficiency, I use ROS to measure operating efficiency by following Sun and Tong (2003). The ROS is calculated as $\text{Operating Profit} / \text{Operating Revenue}$. Where *Operating revenue is the revenue arising from operating business of the company except interests income, net earned premiums, commissions and fees income*.

I adjust all money units to inflation including Capital Expenditure and Operating Revenue based on the Consumer Price Index (CPI 2003 =100). The CPI data is obtained from the National Bureau of Statistics of China. I also winsorize the performance measures at 1% and 99% levels to exclude extremum.

4.3.5 Control Variables

Following previous literature, I control firm level characteristics as follows. The data used to calculate control variables is obtained from the financial reports of listed firms.

Ownership.Director, *Ownership.Supervisor*, *Ownership.Executive*, *Ownership.Management* are four variables measuring the fraction of shares held by the director, supervisor, executive and management. Following Demsetz and Villalonga's (2001) study, I use these four variables to control the effect of managerial ownership.

SSR is a dummy variable control for the impact of Split Share Reform on listed firms. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0. Previous literature (Firth, Lin and Zou, 2010; Liao, Liu and Wang, 2014) shows the Split Share Reform is a significant reform and altered the ownership structure in the listed firms in China, so I use the dummy variable to control the influence of the Split Share Reform.

Size Following Wei, Xie and Zhang. (2005) and Chen et al. (2011), I control for firm size by using the logarithm of total assets. They discuss that larger firms may have more resources and more market power to improve output and investment. But large state-owned firms also encounter more government intervention and bureaucracy, which are detrimental to firm performance. Therefore, I use the variable to control for the effect of firm size.

Leverage Consistent with Bhagat and Bolton (2008), I compute leverage as (long-term debt + current portion of long-term debt (Non-current Long-term Liability due within one year)) divided by total assets. Gugler, Ivanova and Zechner (2014) discuss that large individual

investors may choose to retain control of more highly leveraged firms or they may choose lower leverage to reduce risks to the firm and affect firm performance. Leverage is used strategically by controlling shareholders.

Age is the number of years since the firm's establishment. It is believed that as firms age, they become more complex and more mature in management. The mature management may have impeccable knowledge of how to operate the firm and benefit firm performance, but they may also benefit from the complexity of the aged firm and expropriate minority shareholders. Therefore, firm age may also be an appropriate control variable in the analysis (Chen, 2015).

Crisis is a dummy variable controlling for the impact of recent financial crisis on listed firms. The global financial crisis in 2007 brought shocks to Chinese capital market, and the Chinese government then implemented several stimulation policies to recover the economy. I identify the financial crisis period as from 2007 to 2010. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0.

4.3.6 Descriptive Statistics

Table 4.1 presents the descriptive statistics of the ultimate controlling ownership and hierarchy of state-controlled listed firms. The descriptive statistics of each performance measure and control variables are presented in chapter 2, Table 2.4. The table 4.1 shows the number of times that control methods change from one type to another, the number of listed firms with particular times of control method changes in the sample, the proportion of these firms from the whole sample, and the number of listed firms yearly, the average ultimate controlling ownership and average hierarchy of ownership structure under different control methods.

Insert Table 4.1

In Table 4.1, I show that there is no control method change in 2,643 firms which account for 85.9 percent of total firms in the sample. There are 263 firms occurring 1 time of control method changes, 124 firms occurring 2 times of control method changes, 35 firms occurring 3 times of control method changes. Only 10 firms have 4 times of control method changes. There is one firm with 5 occurrences and one with 6 occurrences of control method changes. There are few firms occurring control methods changes. I also show the times of control methods changes are positively correlated to the times of ownership transfers. The correlation is significant at 10% level. The results imply that the control methods changes in listed firms are correlated to their ownership transfers. When the control rights transfer from one ultimate controller to another, the methods through which the ultimate controllers obtain control rights may change.

In Table 4.1, I also divide the state-controlled listed firms by the methods through which the ultimate controller obtains control rights. For example, there are 826 listed firms in which the state obtains the control rights of the firm through the largest shareholder (method A) in 2003. The results also show that there are 826 listed firms whose largest shareholders are directly or indirectly state controlled in 2003. The average ultimate controlling ownership is 47.503% and average hierarchy is 1.623, which means there are 0.623 firms on average between the ultimate controller and the listed firm. Similarly, there are 4 listed firms in which the state gets the control rights of the firm through non-largest shareholders (method B) in 2003, which means there are 4 listed firms whose non-largest shareholders are directly or indirectly state controlled in 2003.

Figure 4.2 shows the yearly number of state-controlled listed firms with different control methods from 2003 to 2016. The number of listed firms under method *A* suffered a mild decrease from 2003. At the same time, the number of listed firms under method *C* maintained a stable growth from 2003 to 2016. Table 4.1 also shows that the total number of the state-controlled listed firms under Methods A, B and C increased from 885 in 2003 to 982 in 2010 and was maintained around 980 afterwards. The overall number of the state-controlled listed firms under Methods A, B and C has increased since 2003, and the number of listed firms under method *A* decreased from 2011. The state might begin to change some of the listed firms under its control from Method *A* to Method *C*. After the global financial crisis occurred, Chinese government introduced ten measures to expand domestic demand and promote steady and rapid economic growth which were called ‘Four Trillion Stimulus Plan’ in November 2008. Even though the ‘Four Trillion Stimulus Plan’ recovered China’s economy, it brought severe problems such as inflation, excess production capacity etc. To stabilise the domestic economy, the government issued ‘Opinions about deepening the reform of the economic system in 2010’ (Central Government Website, 2010). There are two key points about the state-owned enterprise: first, the government needed to encourage and guide the healthy development of private investment, eliminate the institutional obstacles of private investment, support private capital to flow to the basic industries and infrastructure, public utilities, social programs, financial services, and other fields; second, the government should promote state-owned capital to exit from the general competitive industries and broaden the development space for the private ownership economy. The state-owned capital needed to focus on important industries and key areas of national security and national economic lifelines. In other words, the government should decrease their ownership in certain firms and grant more space for the private capital. However, in fact, decentralising ownership may lead to a loss of control rights. The state chose a compromise solution: decrease the shareholding of the largest shareholder

and increase the shareholdings of non-largest shareholders. The non-largest shareholder may be the middle-tier manager or another entity which constructs a new control route for the ultimate controller. The solution brings two advantages: the ultimate controlling ownership does not decrease; there is a reduction in the hierarchy between the listed firm and ultimate controller. Furthermore, the ultimate controller re-distributes the resources within the control structure, reduces risk by assigning multiple subsidiaries to hold the shares of the listed firm, diversifies financing methods or builds middle-tier state-owned capital investment and operation companies which all result in changes in control methods.

Insert Figure 4.2

Secondly, the ultimate controlling ownership fluctuates between 41% and 42% from 2006 to 2016. Figure 4.3 presents the yearly average ultimate controlling ownership of state-controlled listed firms with different control methods. The ultimate controlling ownership of the listed firms decreased from 2005 to 2006. The Split Share Reform transferred the state-owned non-tradable shares to tradable shares which can be owned by the public. Therefore, the ultimate controlling ownership decreased slightly. Due to the ‘Four Trillion Stimulus Plan’ in 2008 and subsequent reform, the ultimate controlling ownership of listed firms under method *C* presents a U shape. The ultimate controlling ownership has stayed stable at around 42% since the Split Share Reform. Also, the total ultimate controlling ownership under Method *B* is lower than that under Methods *A* and *C*. Even when the state changed the control method from *A* to *C*, the ultimate controlling ownership did not decrease, which implies the ultimate controller has strong incentives to maintain their control rights.

Insert Figure 4.3

Thirdly, the average hierarchy of the listed firms under Method *B* is slightly larger than that for Methods *A* and *C*. Figure 4.4 presents the yearly average hierarchy of state-controlled listed

firms with different control methods. The average hierarchy of the listed firms under Methods A, B and C is 2.314, 2,724 and 2.276 respectively. In order to obtain the majority of the shares of the listed firms, the ultimate controllers build up a more complex control structure under Method B than those under Methods A and C. The results also show that there could be less agency cost, information cost and other cost in the ownership structure of the listed firms under Method C than Method A. Less hierarchy means stronger incentives of the ultimate controller to supervise the listed firms. In sum, the results in Table 4.1 show that the methods through which the ultimate controllers obtain the control rights are not changeless, the ultimate controlling ownership is high (above 40%), and the average hierarchy of the listed firms under Method B is slightly larger than Methods A and C.

Insert Figure 4.4

Table 4.2 reports the correlations among the main variables. The results show that the SASAC, Department and Central Level dummy variables positively correlate to the hierarchy and control method dummies, but others report negative correlations. The correlation matrix also indicates that, except for the correlations among the largest shareholder variables, correlations are small, suggesting that collinearity is not an issue. The following subsections further estimate the effects of different types of state ultimate controllers on firm performance.

Insert Table 4.2

4.3.7 Methodology

To investigate the effects of ultimate controlling ownership on firm performance, I use fixed effects for firms and time in all estimations and correct for heteroscedasticity by following Anderson and Reeb (2003), Gugler, Ivanova and Zechner (2014). Because the Hausman Test shows that fixed effect is more suitable for the data in this chapter. Firstly, I study the

relationship between the six types of ultimate controllers and firm performance. The regression equation is described as follows:

4.a

$$\begin{aligned}
& Performance_{i,t} \\
&= \alpha + \beta_1 Dummy.SASAC_{i,t} + \beta_2 Dummy.AssetBureau_{i,t} \\
&+ \beta_3 Dummy.Government_{i,t} + \beta_4 Dummy.Department_{i,t} \\
&+ \beta_5 Dummy.SOE_{i,t} + \beta_6 Dummy.PublicInstitution_{i,t} \\
&+ \beta_7 Ownership.Director_{i,t} + \beta_8 Ownership.Supervisor_{i,t} \\
&+ \beta_9 Ownership.Executive_{i,t} + \beta_{10} Ownership.Management_{i,t} \\
&+ \beta_{11} SSR_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Leverage_{i,t} + \beta_{14} Age_{i,t} + \beta_{15} Crisis_{i,t} \\
&+ \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
\end{aligned}$$

Where,

$Performance_{i,t}$ are the measures for firm performance of firm i in year t , including firm output, employment, profitability, labour productivity, investment and operating efficiency;

$Dummy.SASAC_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is SASAC, otherwise 0;

$Dummy.AssetBureau_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is Asset Bureau, otherwise 0;

$Dummy.Government_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is Government, otherwise 0;

$Dummy.Department_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is Department, otherwise 0;

$Dummy.SOE_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is SOE, otherwise 0;

*Dummy.PublicInstitution*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Public Institution, otherwise 0;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

*Age*_{*i,t*} is the number of years since the firm *i*'s establishment in year *t* to control for the firm age;

*Crisis*_{*i,t*} is a dummy variable controlling for the impact of recent financial crisis on listed firm *i* in year *t*. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0;

*StockCode*_{*i,t*} is the fixed effects variable identifying the unique code of firm *i* in year *t*;

*Year*_{*i,t*} is the fixed effects variable identifying the year of firm *i* in year *t*.

Then I examine the effects of the ultimate controllers on three administrative levels on firm performance. The regression equation is described as follows:

4.b

*Performance*_{*i,t*}

$$\begin{aligned} &= \alpha + \beta_1 \text{Dummy.} \text{CentralLevel}_{i,t} + \beta_2 \text{Dummy.} \text{ProvincialLevel}_{i,t} \\ &+ \beta_3 \text{Dummy.} \text{MunicipalLevel}_{i,t} + \beta_4 \text{Ownership.} \text{Director}_{i,t} \\ &+ \beta_5 \text{Ownership.} \text{Supervisor}_{i,t} + \beta_6 \text{Ownership.} \text{Executive}_{i,t} \\ &+ \beta_7 \text{Ownership.} \text{Management}_{i,t} + \beta_8 \text{SSR}_{i,t} + \beta_9 \text{Size}_{i,t} + \beta_{10} \text{Leverage}_{i,t} \\ &+ \beta_{11} \text{Age}_{i,t} + \beta_{12} \text{Crisis}_{i,t} + \gamma_1 \text{StockCode}_{i,t} + \gamma_2 \text{Year}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy. CentralLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at central level, otherwise 0;

*Dummy. ProvincialLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at provincial level, otherwise 0;

*Dummy. MunicipalLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at municipal level, otherwise 0;

*Ownership. Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership. Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership. Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership. Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

$SSR_{i,t}$ is a dummy variable controlling for the impact of Split Share Reform on firm i in year t . SSR equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

$Size_{i,t}$ is the logarithm of total assets of firm i in year t to control for the impacts of firm size;

$Leverage_{i,t}$ is the (long-term debt + current portion of long-term debt) divided by total assets of firm i in year t to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . $Crisis$ equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

I also examine the interaction effects of ultimate controlling ownership on the relationship between the types of state ultimate controller and firm performance. The regression equation is described as follows:

4.c

$$\begin{aligned}
 Performance_{i,t} = & \alpha + \beta_1 Dummy.SASAC_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_2 Dummy.AssetBureau_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_3 Dummy.Government_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_4 Dummy.Department_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_5 Dummy.SOE_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_6 Dummy.PublicInstitution_{i,t} \\
 & * UltimateControllingOwnership_{i,t} + \beta_7 Ownership.Director_{i,t} \\
 & + \beta_8 Ownership.Supervisor_{i,t} + \beta_9 Ownership.Executive_{i,t} \\
 & + \beta_{10} Ownership.Management_{i,t} + \beta_{11} SSR_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Leverage_{i,t} \\
 & + \beta_{14} Age_{i,t} + \beta_{15} Crisis_{i,t} + \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.SASAC*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SASAC, otherwise 0;

*Dummy.AssetBureau*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Asset Bureau, otherwise 0;

*Dummy.Government*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Government, otherwise 0;

*Dummy.Department*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Department, otherwise 0;

*Dummy.SOE*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SOE, otherwise 0;

*Dummy.PublicInstitution*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Public Institution, otherwise 0;

*UltimateControllingOwnership*_{*i,t*} is the sum of the proportion of shares held by the shareholders related to the ultimate controller of firm *i* in year *t*;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

$SSR_{i,t}$ is a dummy variable controlling for the impact of Split Share Reform on firm i in year t . SSR equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

$Size_{i,t}$ is the logarithm of total assets of firm i in year t to control for the impacts of firm size;

$Leverage_{i,t}$ is the (long-term debt + current portion of long-term debt) divided by total assets of firm i in year t to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . $Crisis$ equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

Then I study the interaction effects of ultimate controlling ownership on the relationship between the state ultimate controller at different administrative levels and firm performance.

The regression equation is described as follows:

4.d

$Performance_{i,t}$

$$\begin{aligned}
 &= \alpha + \beta_1 \text{Dummy.CentralLevel}_{i,t} * \text{UltimateControllingOwnership}_{i,t} \\
 &+ \beta_2 \text{Dummy.ProvincialLevel}_{i,t} * \text{UltimateControllingOwnership}_{i,t} \\
 &+ \beta_3 \text{Dummy.MunicipalLevel}_{i,t} * \text{UltimateControllingOwnership}_{i,t} \\
 &+ \beta_4 \text{Ownership.Director}_{i,t} + \beta_5 \text{Ownership.Supervisor}_{i,t} \\
 &+ \beta_6 \text{Ownership.Executive}_{i,t} + \beta_7 \text{Ownership.Management}_{i,t} + \beta_8 SSR_{i,t} \\
 &+ \beta_9 Size_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Age_{i,t} + \beta_{12} Crisis_{i,t} + \gamma_1 StockCode_{i,t} \\
 &+ \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.CentralLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at central level, otherwise 0;

*Dummy.ProvincialLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at provincial level, otherwise 0;

*Dummy.MunicipalLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at municipal level, otherwise 0;

*UltimateControllingOwnership*_{*i,t*} is the sum of the proportion of shares held by the shareholders related to the ultimate controller of firm *i* in year *t*;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for the firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

To investigate the potential effects of internal structure within the state-owned business groups from, I start to study the interaction effects of firm hierarchy on the relationship between the types of state ultimate controller and firm performance. The regression equation is described as follows:

4.e

$$\begin{aligned}
 & Performance_{i,t} \\
 & = \alpha + \beta_1 Dummy.SASAC_{i,t} * Hierarchy_{i,t} + \beta_2 Dummy.AssetBureau_{i,t} \\
 & * Hierarchy_{i,t} + \beta_3 Dummy.Government_{i,t} * Hierarchy_{i,t} \\
 & + \beta_4 Dummy.Department_{i,t} * Hierarchy_{i,t} + \beta_5 Dummy.SOE_{i,t} \\
 & * Hierarchy_{i,t} + \beta_6 Dummy.PublicInstitution_{i,t} * Hierarchy_{i,t} \\
 & + \beta_7 Ownership.Director_{i,t} + \beta_8 Ownership.Supervisor_{i,t} \\
 & + \beta_9 Ownership.Executive_{i,t} + \beta_{10} Ownership.Management_{i,t} \\
 & + \beta_{11} SSR_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Leverage_{i,t} + \beta_{14} Age_{i,t} + \beta_{15} Crisis_{i,t} \\
 & + \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.SASAC*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SASAC, otherwise 0;

*Dummy.AssetBureau*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Asset Bureau, otherwise 0;

*Dummy.Government*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Government, otherwise 0;

*Dummy.Department*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Department, otherwise 0;

*Dummy.SOE*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SOE, otherwise 0;

*Dummy.PublicInstitution*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Public Institution, otherwise 0;

*Hierarchy*_{*i,t*} is the number of entities between the ultimate controller and listed firm plus one in the shortest control chain of the listed firm *i* in year *t*;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

$SSR_{i,t}$ is a dummy variable controlling for the impact of Split Share Reform on firm i in year t . SSR equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

$Size_{i,t}$ is the logarithm of total assets of firm i in year t to control for the impacts of firm size;

$Leverage_{i,t}$ is the (long-term debt + current portion of long-term debt) divided by total assets of firm i in year t to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for firm age;

$Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;

$StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

Then I study the interaction effects of firm hierarchy on the relationship between the state ultimate controller at different administrative levels and firm performance. The regression equation is described as follows:

4.f

$Performance_{i,t}$

$$\begin{aligned}
 &= \alpha + \beta_1 \text{Dummy.CentralLevel}_{i,t} * \text{Hierarchy}_{i,t} \\
 &+ \beta_2 \text{Dummy.ProvincialLevel}_{i,t} * \text{Hierarchy}_{i,t} \\
 &+ \beta_3 \text{Dummy.MunicipalLevel}_{i,t} * \text{Hierarchy}_{i,t} \\
 &+ \beta_4 \text{Ownership.Director}_{i,t} + \beta_5 \text{Ownership.Supervisor}_{i,t} \\
 &+ \beta_6 \text{Ownership.Executive}_{i,t} + \beta_7 \text{Ownership.Management}_{i,t} + \beta_8 SSR_{i,t} \\
 &+ \beta_9 Size_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Age_{i,t} + \beta_{12} Crisis_{i,t} + \gamma_1 StockCode_{i,t} \\
 &+ \gamma_2 Year_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.CentralLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at central level, otherwise 0;

*Dummy.ProvincialLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at provincial level, otherwise 0;

*Dummy.MunicipalLevel*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is at municipal level, otherwise 0;

*Hierarchy*_{*i,t*} is the number of entities between the ultimate controller and listed firm plus one in the shortest control chain of the listed firm *i* in year *t*;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

$Age_{i,t}$ is the number of years since the firm i 's establishment in year t to control for firm age;
 $Crisis_{i,t}$ is a dummy variable controlling for the impact of recent financial crisis on listed firm i in year t . Crisis equals 1 if the sample year is from 2007 to 2010, otherwise 0;
 $StockCode_{i,t}$ is the fixed effects variable identifying the unique code of firm i in year t ;
 $Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

I study the interaction effects of firm control methods on the relationship between the types of state ultimate controller and firm performance. The regression equation is described as follows:

4.g

$$\begin{aligned}
Performance_{i,t} = & \alpha + \beta_1 Dummy.SASAC_{i,t} * ControlMethod.A_{i,t} + \beta_2 Dummy.SASAC_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_3 Dummy.SASAC_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_4 Dummy.AssetBureau_{i,t} * ControlMethod.A_{i,t} + \beta_5 Dummy.AssetBureau_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_6 Dummy.AssetBureau_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_7 Dummy.Government_{i,t} * ControlMethod.A_{i,t} + \beta_8 Dummy.Government_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_9 Dummy.Government_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_{10} Dummy.Department_{i,t} * ControlMethod.A_{i,t} + \beta_{11} Dummy.Department_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_{12} Dummy.Department_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_{13} Dummy.SOE_{i,t} * ControlMethod.A_{i,t} + \beta_{14} Dummy.SOE_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_{15} Dummy.SOE_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_{16} Dummy.PublicInstitution_{i,t} * ControlMethod.A_{i,t} \\
& + \beta_{17} Dummy.PublicInstitution_{i,t} * ControlMethod.B_{i,t} \\
& + \beta_{18} Dummy.PublicInstitution_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_{19} Ownership.Director_{i,t} + \beta_{20} Ownership.Supervisor_{i,t} \\
& + \beta_{21} Ownership.Executive_{i,t} + \beta_{22} Ownership.Management_{i,t} + \beta_{23} SSR_{i,t} \\
& + \beta_{24} Size_{i,t} + \beta_{25} Leverage_{i,t} + \beta_{26} Age_{i,t} + \beta_{27} Crisis_{i,t} + \gamma_1 StockCode_{i,t} \\
& + \gamma_2 Year_{i,t} + \varepsilon_{i,t}
\end{aligned}$$

Where,

*Performance*_{*i,t*} are the measures for firm performance of firm *i* in year *t*, including firm output, employment, profitability, labour productivity, investment and operating efficiency;

*Dummy.SASAC*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SASAC, otherwise 0;

*Dummy.AssetBureau*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Asset Bureau, otherwise 0;

*Dummy.Government*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Government, otherwise 0;

*Dummy.Department*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Department, otherwise 0;

*Dummy.SOE*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is SOE, otherwise 0;

*Dummy.PublicInstitution*_{*i,t*} is the dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* is Public Institution, otherwise 0;

*ControlMethod.A*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* obtains control rights only through the largest shareholder, otherwise 0;

*ControlMethod.B*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* obtains control rights only through the non-largest shareholders, otherwise 0;

*ControlMethod.C*_{*i,t*} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* obtains control rights through both of the largest and non-largest shareholders, otherwise 0;

*Ownership.Director*_{*i,t*} is the control variable controlling for the ownership by director of firm *i* in year *t*;

*Ownership.Supervisor*_{*i,t*} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

*Ownership.Executive*_{*i,t*} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

*Ownership.Management*_{*i,t*} is the control variable controlling for the ownership by management of firm *i* in year *t*;

*SSR*_{*i,t*} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms suffered state ownership transfer during the period from 2005 to 2010, otherwise 0;

*Size*_{*i,t*} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

*Leverage*_{*i,t*} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

*Age*_{*i,t*} is the number of years since the firm *i*'s establishment in year *t* to control for the firm age;

*Crisis*_{*i,t*} is a dummy variable controlling for the impact of recent financial crisis on listed firm *i* in year *t*. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0;

*StockCode*_{*i,t*} is the fixed effects variable identifying the unique code of firm *i* in year *t*;

*Year*_{*i,t*} is the fixed effects variable identifying the year of firm *i* in year *t*.

At last, I investigate the interaction effects of firm control methods on the relationship between the state ultimate controller at different administrative level and firm performance. The regression equation is described as follows:

4.h

$$\begin{aligned}
Performance_{i,t} = & \alpha + \beta_1 Dummy.CentralLevel_{i,t} * ControlMethod.A_{i,t} + \beta_2 Dummy.CentralLevel_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_3 Dummy.CentralLevel_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_4 Dummy.ProvincialLevel_{i,t} * ControlMethod.A_{i,t} + \beta_5 Dummy.ProvincialLevel_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_6 Dummy.ProvincialLevel_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_7 Dummy.MunicipalLevel_{i,t} * ControlMethod.A_{i,t} + \beta_8 Dummy.MunicipalLevel_{i,t} \\
& * ControlMethod.B_{i,t} + \beta_9 Dummy.MunicipalLevel_{i,t} * ControlMethod.C_{i,t} \\
& + \beta_{10} Ownership.Director_{i,t} + \beta_{11} Ownership.Supervisor_{i,t} \\
& + \beta_{12} Ownership.Executive_{i,t} + \beta_{13} Ownership.Management_{i,t} + \beta_{14} SSR_{i,t} \\
& + \beta_{15} Size_{i,t} + \beta_{16} Leverage_{i,t} + \beta_{17} Age_{i,t} + \beta_{18} Crisis_{i,t} + \gamma_1 StockCode_{i,t} + \gamma_2 Year_{i,t} \\
& + \varepsilon_{i,t}
\end{aligned}$$

Where,

$Performance_{i,t}$ are the measures for firm performance of firm i in year t , including firm output, employment, profitability, labour productivity, investment and operating efficiency;

$Dummy.CentralLevel_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is at central level, otherwise 0;

$Dummy.ProvincialLevel_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is at provincial level, otherwise 0;

$Dummy.MunicipalLevel_{i,t}$ is the dummy variable which equals 1 when the ultimate controller of the listed firm i in year t is at municipal level, otherwise 0;

$ControlMethod.A_{i,t}$ is a dummy variable which equals 1 when the ultimate controller of the listed firm i in year t obtains control rights only through the largest shareholder, otherwise 0;

ControlMethod.B_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* obtains control rights only through the non-largest shareholders, otherwise 0;

ControlMethod.C_{i,t} is a dummy variable which equals 1 when the ultimate controller of the listed firm *i* in year *t* obtains control rights through both of the largest and non-largest shareholders, otherwise 0;

Ownership.Director_{i,t} is the control variable controlling for the ownership by director of firm *i* in year *t*;

Ownership.Supervisor_{i,t} is the control variable controlling for the ownership by supervisor of firm *i* in year *t*;

Ownership.Executive_{i,t} is the control variable controlling for the ownership by executive of firm *i* in year *t*;

Ownership.Management_{i,t} is the control variable controlling for the ownership by management of firm *i* in year *t*;

SSR_{i,t} is a dummy variable controlling for the impact of Split Share Reform on firm *i* in year *t*. *SSR* equals 1 if the listed firms underwent state ownership transfer during the period from 2005 to 2010, otherwise 0;

Size_{i,t} is the logarithm of total assets of firm *i* in year *t* to control for the impacts of firm size;

Leverage_{i,t} is the (long-term debt + current portion of long-term debt) divided by total assets of firm *i* in year *t* to control for the leverage of firm;

Age_{i,t} is the number of years since the firm *i*'s establishment in year *t* to control for the firm age;

Crisis_{i,t} is a dummy variable controlling for the impact of recent financial crisis on listed firm *i* in year *t*. *Crisis* equals 1 if the sample year is from 2007 to 2010, otherwise 0;

StockCode_{i,t} is the fixed effects variable identifying the unique code of firm *i* in year *t*;

$Year_{i,t}$ is the fixed effects variable identifying the year of firm i in year t .

In general, the sample used in this chapter is obtained from the CSMAR database and includes 3,077 firms, and 27,077 firm-year observations over the period from 2003 to 2016, after deleting firms in the financial industry, merged or deactivated firms and the firm-year observations where the information on the actual controller is missing. Using the new classification in previous chapter, I identify the state ultimate controllers of each listed firm and categorise them based on the administrative levels and functions. I include both financial and non-financial performance measures in this chapter, namely firm output, employment, profitability, labour productivity, investment and operating efficiency. The performance data is obtained from annual reports of the listed firms. I employ fixed effects regression to analyse the relationship between ultimate controlling ownership, rather than the direct controlling ownership, and firm performance. I also investigate the potential effects of internal structure within the state-owned business groups from two aspects: the hierarchy and control method in the listed firm. The results are presented in the next section.

4.4 Empirical Results

This section shows the empirical results for the chapter. Section 4.4.1 shows the regression results of equations 3.a and 3.b, on the effects of administrative levels and functions of state ultimate controllers on firm performance. Section 4.4.2 shows the regression results of equations 3.c and 3.d, on the interaction effects of ultimate controlling ownership and state ultimate controllers on firm performance. Section 4.4.3 estimates regression results of equations 3.e and 3.f, on the interaction effects of hierarchy and state ultimate controllers on firm performance. Section 4.4.4 estimates regression results of equations 3.g and 3.h, on the interaction effects of control methods and state ultimate controllers on firm performance.

Section 4.4.5 employs several additional tests to check the robustness of the empirical results. At last, I conclude the empirical findings in the chapter.

4.4.1 Effects of State Ultimate Controllers on Firm Performance

This subsection firstly employs equation 4.a and shows the effects of six types of ultimate controllers on firm performance. The results are presented in the Table 4.3 and Figure 4.5.

Insert Table 4.3

In this estimation, non-state controllers are treated as the reference group. Column 2 shows the results of the effects of state ultimate controllers on firm output. The SASAC as ultimate controller has a positive effect on firm output. When the SASAC controls the listed firms, the firm output is increased by 3.37% compared with non-state-controlled firms. The output is log transformed, so I interpret the coefficient by using the exponentiated value and in terms of percentage change. The enterprises controlled by the SASACs are expected to make significant contributions to the domestic economy. A number of central enterprises are not only pioneers in domestic industries, but are also strongly competitive in the international market. The government gave priority to the development of heavy industry and accelerate the industrialisation of the country. The listed firms in the heavy industry are controlled and managed by the SASACs. One of the major missions for the SASACs is to realise the maintenance and increase of state-owned assets, which means increasing the output of the listed firms under their control. The result is consistent with Liao, Liu and Wang's (2014) study. They show that SOEs outperform non-SOEs in firm output.

Column 3 shows the results for employment. State controllers, excepting Public Institutions, have a positive impact on the firm employment. Compared to non-state controllers, Government, Department, Asset Bureau, SASAC and SOE as ultimate controllers increase the

firm employment by 7.98%, 6.79%, 6.63%, 7.76% and 6.72% respectively. Among these state ultimate controllers, Government and SASAC have the most positive effect on firm employment. This is expected as the government itself as the ultimate controller should act as an example to increase firm employment, and the SASACs owning large and super large listed firms also need to actively fulfil the social responsibility. Even though Liao, Liu and Wang (2014) show that the SOEs' employment was boosted after the Split Share Reform, no previous literature distinguishes the effects of different types of ultimate controllers on firm employment.

Column 4 shows the results for ROA. State controllers, excepting Department, have a significantly negative impact on the firm ROA. Specifically, compared with non-state controllers, when the Government, Asset Bureau, SASAC, SOE or Public Institution controls a listed firm, firm ROA decreases by -1.72%, -2.11%, -1.83%, -1.55% and -1.9% respectively.

Column 5 shows the results for Tobin's Q. Among all the controllers, only the Government and SASAC have a negative effect on the Tobin's Q. The coefficients are -0.868 and -0.777 respectively and are significant at 5% level. The results about the effect of state controllers on firm profitability show that most state controllers have a negative effect on firm profitability. The results are consistent with previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021), that also report a negative relationship between state ownership and firm profitability.

The remaining columns show the results for labour productivity, investment and operating efficiency. Only the SASAC as ultimate controller has a negative influence on firm labour productivity, investment and operating efficiency. Compared with the non-state controllers, when the SASAC ultimately controls the listed firms, the firm labour productivity, investment, and operating efficiency decrease by -5.13%, -7.32% and -5.45% respectively. Other state

controllers also decrease firm labour productivity and operating efficiency when they control the listed firms. The long-term government support leads to a lack of competitiveness and innovation spirit in most state-owned enterprises. Also the state-owned enterprises undertake many social functions, which leads to employment of unnecessary staff, creating inefficiency. The results show that state controllers as ultimate controllers have negative impacts on firm productivity, including operating efficiency and labour productivity. The results are not consistent with Liu, Liao and Wang (2014), who find that the SOEs benefit the firm productivity and investment. The conflicts can be attributed to the fact that their study treats all types of ownership as one, instead of separating them based on their motivation to operate the listed firms.

This subsection then employs the equation 4.b and shows the effects of the three administrative levels on firm performance. The results are presented in Table 4.4 and Figure 4.6.

Insert Table 4.4

Column 2 shows the results of the effects of the administrative levels on firm output. State controllers at Central and Provincial levels significantly improve firm output when they are the firms' ultimate controllers. These large state-owned enterprises are owned by the Central- or Provincial-level governmental agencies due to their significance to the economy. The results imply that the SASAC and high administrative-level governmental agencies as ultimate controllers have positive impacts on firm output.

Column 3 shows that the state controllers at Central and Municipal levels have positive effects on firm employment. The employment of the listed firm controlled by the state controllers at Central or Municipal levels increases by 6.09% and 5.94% respectively. Within a 'level upon

level' control mechanism, the Municipal-level governmental agencies must obey the orders from Central government. The Central government stabilise employment, comply with the new labour laws, sign labour contracts with employees, cover the five basics (insurance pension, unemployment, medical treatment, industrial injury and death).

Column 4 shows that the state controllers at Central and Municipal levels have negative effects on firm ROA, with the coefficients -0.00698 and -0.0147 respectively. The state ultimate controllers at Provincial level have no significant effect on firm profitability. The state ultimate controllers at Central level have fewer negative impacts than the Municipal level, which means the state controllers at Central levels do less harm to the Municipal level. Chen et al. (2018) discuss that the higher hierarchy (their political ranks) of the managers of the Chinese listed firms in this labour market, the more careful they are about the firm performance. Column 5 presents that all the state controllers at either Central, Provincial or Municipal levels decrease the firm Tobin's Q when they control the listed firms.

Column 6 shows the results of the effects of administrative levels on firm labour productivity. Under the pressure of employment mission, the state controllers at Municipal level decrease the firm labour productivity by -6.18%. Column 7 shows the results of the effects of administrative levels on firm investment. There is no state ultimate controller at any administrative level that has an effect on firm investment. Even the SASAC and SOE as ultimate controllers have negative effects on investment, the administrative levels are not a significant factor influencing investment. This is because investment is affected by the objectives of state controllers, but not their administrative levels.

Column 8 shows the results of the effects of administrative levels on firm operating efficiency. The state ultimate controllers at Central or Municipal level have negative impacts on firm operating efficiency, decreasing it by -3.06% and -3.25% respectively. The ultimate controllers at Central level also do less harm to firm operating efficiency than the Municipal level, as higher-level firm managers care more about firm efficiency than the lower levels. Similarly to the previous chapter, the R-squared is relatively low in the results for the performance measures ROA (R-squared is 5%), Tobin's Q (R-squared is 8%), ROS (R-squared is 4%), compared to that in previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Cao, Pan and Tian, 2011). The reason is that I use more variables than those in the previous literature. The literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Cao, Pan and Tian, 2011) uses four right-hand-side variables on average. The chapter employs six dummy variables for the types of state ultimate controllers and three dummy variables for the administrative levels. The large number of variables results in a low R-squared.

Similar with previous chapter, the R-squared in this chapter is higher when Operating Revenue is used as the dependent variable compared to other alternative dependent variables. Because the enterprises perform the output targets set by the government and lead to high R-squared. However, the government does not set other performance targets. The enterprises perform differently, which result in relatively low R-squared.

In sum, the results in the section show that the SASAC and high administrative-level governmental agencies as ultimate controllers have a positive impact on firm output, the state controllers at Central or Municipal levels as ultimate controllers are positively related to firm employment, the state controllers at the Municipal level decrease firm profitability, productivity and operating efficiency when they control the listed firms. None of the previous

literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen, et al., 2008; Fan, Huang and Zhu, 2013; Liu, Wang and Zhu, 2021) has shown the same findings, as they do not distinguish state controllers with different objectives and at different administrative levels.

4.4.2 Effects of the Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Firm Performance

This subsection firstly employs the equation 4.c and shows the interaction effects of ultimate controlling ownership and state ultimate controllers on firm performance. The results are presented in the Table 4.5 and Figure 4.7.

Insert Table 4.5

Column 2 shows results of the effects of the interaction between the ultimate controlling ownership and state ultimate controllers on firm output. When the ultimate controlling ownership increases 1% in the SASAC controlled listed firms, firm output increases by 0.088%. The results are consistent with hypothesis 3a. The increased ownership leads to stronger incentives for SASAC to promote firm output, but the actual impact is very weak. The Public Institutions have incentives to reduce employees, which leads to less firm output. However, the negative effect is also limited, as a 1% increase in ultimate controlling ownership of the Public Institution only decreases the firm output by -0.182%.

Column 3 presents the results for employment. The interaction between all state controllers and ultimate controlling ownership has a negative effect on firm employment. When the ultimate controlling ownership increases 1% in the Government, Department, Asset Bureau, SASAC, SOE, and Public Institution controlled listed firms, firm employment will decrease by -0.205%, -0.205%, -0.248%, -0.202%, -0.232% and -0.479% respectively. The results are in

accordance with hypothesis 3b. State-owned enterprises undertake many social functions, which lead to redundant staffs and inefficiency. A rational government balances the negative effects of political interference and positive effects of supervisory management, especially when the shareholdings of the government entitle the absolute control power over the listed firms, the government has more incentives and abilities to provide effective monitoring of the enterprise. Therefore, the state controllers undertake measures such as decreasing the number of redundant employees, to improve firm efficiency and productivity. The increase of ultimate controlling ownership in the state-owned listed firms can therefore decrease firm employment.

Column 4 presents the results for ROA. The interaction between all state controllers and ultimate controlling ownership has a positive effect on firm ROA. Specifically, when the ultimate controlling ownership increases by 1% in the Government, Department, Asset Bureau, SASAC, SOE, and Public Institution controlled listed firms, the firm ROA increases by 0.0699%, 0.0841%, 0.0597%, 0.0648%, 0.0668% and 0.0637% respectively. The results are significant at 1% level and consistent with hypothesis 3c but the positive effects are weak.

The remaining columns show the results for labour productivity, investment and operating efficiency. The interaction between most state controllers and ultimate controlling ownership has a positive effect on firm labour productivity and operating efficiency. The government provides policy support to state-owned enterprises. Government either provides direct monetary support or the ability for state-owned enterprises to obtain finance, or gives them the monopoly position or the market competition power in the industry, which has a positive effect on the daily operation of state-owned enterprises, technology innovation, the expansion of investment and gaining a competitive edge. State-owned enterprises and the government have an unbreakable relationship. The state, as a special shareholder, will pay more attention of

governance, such as political support and protection, to enterprises where they own more shares and related interests. Also, with less employees, the labour productivity of state-controlled listed firms would be improved. Therefore, I conclude that an increase of ultimate controlling ownership in the state-controlled listed firms can improve firm productivity and operating efficiency, but the improvement is limited. The results are consistent with hypothesis 3d. Previous literature either finds that the state ownership is negatively related to firm profitability (Sun and Tong, 2003; Liu, Wang and Zhu, 2021), negatively related to firm ROS (Sun and Tong, 2003) or that SOEs outperform non-SOEs in increasing output and employment (Liao, Liu and Wang, 2014). However, these studies do not separate state shareholders with different incentives, which explains why the findings of this study are not consistent with previous studies.

This subsection then employs the equation 4.d and shows the interaction effects of ultimate controlling ownership and three administrative levels on firm performance. The results are presented in the Table 4.6 and Figure 4.8.

Insert Table 4.6

Column 2 shows results of the effects of the interaction between the ultimate controlling ownership and the three administrative levels on firm output. The interaction between the state controllers at Central/Provincial level and ultimate controlling ownership have positive effects on firm output. When the ultimate controlling ownership of ultimate controllers at the Central/Provincial level increases 1%, the firm output increases by 0.086% and 0.093% respectively. With the increase of state-owned equity, the high administrative-level governmental agencies as ultimate controllers are supposed to increase firm output. The state-owned equity of the listed firms measures the extent to which the ultimate controllers have

control power over the listed firm. As a representative to operate state-owned assets, the government shoulders the responsibility of increasing the value of state-owned assets and pays attention to the operation of the state-owned enterprises. When its control power grows, the government provides help and support to the state-owned enterprises. The supports include preferential tax policy and loans policies, bank financing facilitations, financial subsidies, industry access permission, etc. The enterprises controlled by the high administrative-level governmental agencies are expected to make significant contributions to the domestic economy. Therefore, an increase in the ultimate controlling ownership of the ultimate controllers in the high administrative-level governmental agencies-controlled listed firms can improve the firm output.

Column 3 shows the results for firm employment. The interaction between the state controllers at central level and ultimate controlling ownership have a positive effect on firm employment. As discussed before, the ultimate controllers at central level must fulfil the social responsibilities and maintain employment. When they own more shares of the listed firms, they require those firms to absorb more employees. However, when the ultimate controllers at Provincial level own more shares of the listed firms, firm employment decreases. The ultimate controllers at Provincial level have strong incentives to improve firm efficiency, so they do not to hire redundant labour which may harm the firm performance.

Column 4 shows that interaction between state controllers at provincial level and ultimate controlling ownership has a positive effect on firm ROA. When the ultimate controlling ownership of ultimate controllers increases 1% in the Provincial-level state controlled listed firms, firm ROA increases by 0.0292%. The government as an important entity in the state-owned assets management chain, exercising the supervision of state-owned assets operation

and management. They believe their supervision of the state-owned enterprises could help improve firm performance. Administrative authority by the government has significant deterrent effect on managers of the listed firms misappropriating shares or assets. Effective supervision can reduce moral hazard in the enterprise management and prevent the loss of state-owned assets caused by managerial self-seeking. The Provincial governments, as the middle-tier managers, enjoys more flexibility to fulfil the social responsibilities. Bai, Lu and Tao (2006) have provided a multitask theory of SOE reform in China, arguing that the divergence of interests among different levels of government increases with the amount of surplus labour. Lower-level (such as Provincial) governments are likely to choose not to work with SOEs that are laden with surplus labour and debts. They have stronger incentives to improve firm profitability when their control power grows. The results imply that an increase in the ultimate controlling ownership in the state-owned listed firms can improve firm profitability, even the effects are every weak.

The remaining columns show the results for labour productivity, investment and operating efficiency. Labour productivity and operating efficiency of the listed firms controlled by the ultimate controllers at Provincial level increase when the ultimate controllers own more shares of the listed firms. The more shares, the stronger incentives that the ultimate controllers at Provincial level have to improve firm productivity and efficiency. In sum, the increase in ultimate controlling ownership of the ultimate controllers in the high administrative-level governmental agencies-controlled listed firms can improve the firm output, while an increase in the ultimate controlling ownership of the ultimate controllers in the provincial-level state-owned listed firms can increase firm profitability and productivity but decrease employment. The impacts are weak.

4.4.3 Effects of the Interaction between Firm Hierarchy and State Ultimate Controllers on Firm Performance

This subsection firstly employs the equation 4.e and shows the interaction effects of firm hierarchy and state ultimate controllers on firm performance. The results are presented in Table 4.7 and Figure 4.9.

Insert Table 4.7

Column 2 shows results of the effects of the interaction between the firm hierarchy and state ultimate controllers on firm output. The operating revenue of listed firms controlled by the SASAC is significantly increased, by 1.28%, with the firm hierarchy extended by 1. Column 3 presents the results for firm employment. The increase of 1 layer between ultimate controllers and listed firms significantly increases the employments of the listed firms controlled by the Department, SASAC and SOE by 2.43%, 2.07% and 3.21% respectively.

Column 4 presents the results for firm ROA. There is no significant effect of the interaction between the firm hierarchy and state ultimate controllers on firm ROA. Column 5 shows the results for Tobin's Q. The Tobin's Q of the listed firms controlled by the Government, Asset Bureau, SASAC and Public Institution decrease with the firm hierarchy. Specifically, when the layers between these ultimate controllers and listed firms increase by 1, the Tobin's Q of the listed firms controlled by the Government, Asset Bureau, SASAC, SOE and Public Institution decrease -34.2%, -27.7%, -28.9%, -28.5% and -58.4% respectively. The extension of the hierarchy raises the cost of information transfer and supervision, is adverse to the control of enterprise, and increases the difficulty of restraining the behaviours of management in pursuit of private benefits. Without effective supervision, the managers of these listed firms have few incentives to maximise firm value.

Column 6 shows the results for labour productivity. The increase of 1 layer between ultimate controllers and listed firms significantly decrease the labour productivity of the listed firms controlled by the Department, by -2.41%. With the extension of firm hierarchy, the ultimate controller takes advantage of the complex organisational structure of internal capital markets to damage the interests of small investors and fulfil social responsibilities, such as increasing employment instead of firm productivity.

Column 7 shows the results of investment. The investment in listed firms controlled by the Department increases with the firm hierarchy. The extension of the firm hierarchy means there are more layers between the ultimate controllers and listed firms. These layers may be the financing platforms built by the ultimate controllers to generate capital. With the help of these financing platforms, the ultimate controllers and the shareholders of the listed firm could invest more.

Column 8 shows that an increase in the layers between ultimate controllers and listed firm could decrease the operating efficiency of listed firms controlled by SASAC. The SASAC as ultimate controllers needs to obey the national strategy and internal organisations to fulfil social responsibilities instead of improving firm efficiency. The extension of firm hierarchy could weaken the supervision of the ultimate controller and also reduce the support from the governments. The results regarding labour productivity, investment and operating efficiency are significant at 10% level.

The results of the effects of interactions between state ultimate controllers and the firm hierarchy on firm output, employment and profitability are not consistent. The extension of firm hierarchy could improve the output of SASAC controlled listed firms, the employment of

Department, SASAC and SOE controlled listed firms, but also decrease the Tobin's Q of Government, Asset bureau, SASAC, SOE and Public Institution controlled listed firms. The results show that the extension of firm hierarchy has two sided effects on firm performance. A moderate extension of the hierarchy is beneficial to the improvement of the enterprise efficiency. The extension of hierarchy can also have negative effects, as it may increase the cost of information transfer and supervision or enables the controllers to damage the interests of minority shareholders. The preferences and objectives of ultimate controllers vary with their identities, affect the formation and effect of each hierarchy, and further influence the firm performance

This subsection then employs the equation 4.f and shows the interaction effects of firm hierarchy and three administrative levels on firm performance. The results are presented in Table 4.8 and Figure 4.10.

Insert Table 4.8

Column 2 shows the results of the effects of the interaction between the firm hierarchy and the three administrative levels on firm output. An increased in firm hierarchy has a positive impact on the output of the listed firms controlled by the ultimate controllers at central and provincial levels. The increase of 1 layer between ultimate controllers and listed firms at central and provincial levels significantly improves the firm output, by 1.06% and 1.19% respectively. Column 3 shows the results for firm employment. The increase of 1 layer between ultimate controllers at central level and listed firms increases the employments in the listed firms by 1.18%.

Column 4 shows the results for firm ROA. When the layers between the municipal ultimate controller and listed firm increase by 1, firm ROA decreases by -0.319%. Column 5 shows that the Tobin's Q also decreases by -14.4% if the layers between the Provincial ultimate controller and listed firm increase by 1. The increased cost of information transfer and supervision between the Provincial/Municipal ultimate controllers and listed firms harms the firm profitability.

The remaining columns show the results for firm labour productivity, investment and operating efficiency respectively. The increase of 1 layer between ultimate controllers at provincial level and listed firms improves the labour productivity of the listed firms by 1.83%. The results present inconsistent effects of firm hierarchy on firm performance. The increase in the hierarchy will promote an optimal control structure for the listed firms at high administrative levels and further improve firm output and employment, but the accompanying costs can also harm firm profitability. In general, the results show that the extension of firm hierarchy have two sided effects on firm performances. A moderate extension of the hierarchy is beneficial to the improvement of the enterprise efficiency or increases the cost of information transfer and supervision or enables the ultimate controller expropriating small investors.

4.4.4 Effects of the Interaction between Control Methods and State Ultimate Controllers on Firm Performance

This subsection firstly employs the equation 4.g and shows the interaction effects of control methods and state ultimate controllers on firm performance. The results are presented in Table 4.9 and Figure 4.11.

Insert Table 4.9

Column 2 shows results of the effects of the interaction between the control methods and ultimate controllers on firm output. If the SASAC obtains the control rights from the largest shareholders, firm output increases by 3.84%. Obtaining the control rights through the largest shareholders implies that ownership is concentrated, and the ultimate controllers have strong incentives to provide support to the listed firms. The column 3 shows the results for employment. When the Government obtains control rights through the largest shareholders, firm employment increases by 6.44%. When the Government obtains control rights through the non-largest shareholders, firm employment increases by 19.48%. Obtaining the control rights through non-largest shareholders means that the ultimate controller retains the control rights of the listed firms, re-distributes resources, reduces risks, diversifies financing methods and improves firm performance. With the alterations of control methods, the resources are expected to be equitably distributed, risks are reduced, and firm performance is improved. When the SASAC obtains control rights through the largest or both largest and non-largest shareholders, firm employment increases by 7.1% and 6.75% respectively. Although obtaining the control rights through both largest and non-largest shareholders is the optimal control structure for listed firms, obtaining the control rights through only the largest shareholders implies that the ultimate controllers' control power over listed firms is more concentrated, so that it is easier for the ultimate controller to supervise the management of the listed firms.

Column 4 shows the results for ROA. Most of the interactions between the various state ultimate controllers in the six major groups and control methods have negative effects on firm ROA. For example, when the government obtains the control rights of the listed firms and becomes the ultimate controllers, through the largest shareholders or non-largest shareholders, the ROA of the listed firms decreases by -1.44% and -3.81% respectively. When the state controllers obtain control rights though the non-largest shareholders, the ROA of the listed firm

decreases more than that of listed firms with other control methods. This may be because the total shares proportion indirectly owned by the ultimate controllers through the non-largest shareholders is, on average, lower than that owned by the ultimate controllers through other methods (See Table 4.1). As discussed in the previous section, the ultimate controllers have stronger incentives to improve firm profitability when their control power grows. With lower ultimate controlling ownership of the listed firms, the ultimate controllers obtaining control rights through the non-largest shareholders have less incentive to pursue firm profits than other ultimate controllers.

There are similar results of the Tobin's Q, employment, labour productivity, operating efficiency and firm output. But obtaining the control rights through non-largest shareholders is not always harmful to the firm performances. If the Department obtains the control rights of listed firms through the non-largest shareholders, the ROA of the listed firms increases by 2.86%. The result is not consistent with previous results, which show that the Department decreases firm ROA when it becomes the ultimate controllers. Obtaining the control rights through non-largest shareholders implies that the ultimate controllers must get the control rights through more than one shareholder. The ultimate controlling ownership of these shareholders must be more than that of the largest shareholders to ensure ultimate controllers' control rights of the listed firms. With the help of these shareholders, the ultimate controller could re-distribute the resources within the control structure, reduce risk by assigning multiple subsidiaries to hold the shares of the listed firm, and diversify the financing methods. Therefore, if the Department obtains the control rights through the non-largest shareholders this has a positive impact on firm ROA and investment.

Furthermore, even if the number of the ultimate controllers receiving the control rights from both largest and non-largest shareholders gradually increases, and this change seems unavoidable, obtaining the control rights through both largest and non-largest shareholders is not always better than through only largest shareholders. The results in column 6 also show this. When the Department obtains the control rights through largest shareholders rather than the non-largest shareholders, the firm labour productivity decreases more. Obtaining the control rights from both largest and non-largest shareholders is not always beneficial to firm performance. Column 7 shows that the Department obtaining the control rights from both largest and non-largest shareholders decreases firm investment by -14.68%. Diversified financing methods lead to complex control structures of the listed firm and increase management cost. This is also reflected on the efficiency of listed firms. Column 8 shows the results for the operating efficiency. The SASAC obtaining the control rights from both largest and non-largest shareholders decreases the firm operating efficiency by -4.45%. The results about the interaction effects of control methods and state ultimate controllers are not consistent. For the SASAC, ownership concentration in one shareholder provides strict supervision of the listed firm and results in high employment and output. For the Department, a diversified structure leads to better profitability.

This subsection then employs equation 4.h and shows the interaction effects of control methods and three administrative levels on firm performance. The results are presented in Table 4.10 and Figure 4.12.

Insert Table 4.10

The results show that the ultimate controllers at Provincial level could fuel the firm output if they obtain the control rights through multiple shareholders, but obtaining control rights from

the largest shareholder would help the ultimate controllers at Municipal levels do less harm to firm labour productivity and operating efficiency. Obtaining the control rights from largest shareholders enables the Municipal ultimate controllers to reduce the cost of the management and strengthen the supervision over the listed firms, and improve firm inefficiency. The results also show that Central ultimate controllers could improve firm ROA when obtaining control rights through non-largest shareholders. Municipal ultimate controllers obtaining the control rights through both largest and non-largest shareholders do less harm to the firm ROA than those obtaining the control rights through either largest or non-largest shareholders. Obtaining the control rights through both largest and non-largest shareholders means resources distribution improves, risk reduces and firm performance improves. The results about the interaction effects of control methods and administrative levels are not consistent. For the ultimate controllers at central level, diversified structure leads to better profitability, and the ownership concentration in one shareholder results in high employment and output.

4.4.5 Robustness Check

This section employs several additional estimations to check the robustness of the findings in the chapter. Firstly, following Wei, Xie and Zhang (2005), Cao, Pan and Tian (2011), Chen et al. (2011), Jiang, Rao and Yue (2015) and Liu, Wang and Zhu (2021), I use alternative performance measures, namely Operating Profit, Net Profit Margin, Operating Profit per Employee, Expense Ratio, to re-examine the effects of interaction between ultimate controlling ownership and six types of state ultimate controllers on firm performance, and the effects of interaction between ultimate controlling ownership and three administrative levels on firm performance. Then, as the Split Share Reform was a crucial reform and altered the ownership in most listed firms, I divided the sample into three sub-groups based on years, namely 2003

to 2005, 2006 to 2009 and 2010 to 2016, and re-estimate the relationship between the state ultimate controllers and firm performance.

4.4.5.1 Alternative Performance Measures

Liao, Liu and Wang (2014) provide various performance measures. Following their study, I apply

Logarithm of operating profit as an alternative measure for firm output;

Net profit margin = Net profit/Operating Revenue as the alternative measure for profitability;

Logarithm of operating profit per employee as the alternative proxy for labour productivity;

And

Expense Ratio which is the ratio of selling and financial expenses to operating revenue as alternative measure for operating efficiency.

The results are presented in Table 4.11 and Table 4.12 and show that the main findings in this chapter are robust by using alternative performance measures. The increased ultimate controlling ownership enhances the incentive of ultimate controllers to improve firm inefficiency, so the effects of interaction between the ultimate controlling ownership and the six types of state ultimate controllers has positive effects on firm output, profitability, labour productivity and operating efficiency. The increased ultimate controlling ownership also gives stronger motivations for the ultimate controllers at Central level to promote output and the ultimate controllers at Provincial level to increase firm profitability, labour productivity and operating efficiency, although the positive effects are very weak.

Insert Table 4.11, 4.12

4.4.5.2 Sub-Samples Estimation

To check whether the Split Share Reform affects the findings in the chapter, I divided the sample into three groups, sub-sample from 2003 to 2005, sub-sample from 2006 to 2009, and sub-sample from 2010 to 2016, and re-run the regression 4.c and 4.d to estimate the effects of interaction between ultimate controlling ownership and six types of state ultimate controllers on firm performance, and the effects of interaction between ultimate controlling ownership and three administrative levels on firm performance in the sub-samples. As the sub-samples are divided based on Split Share Reform, I remove the control variable *SSR*. In the sub-sample from 2003 to 2005, the financial crisis had not yet occurred, so I also remove the control variable *Crisis* in the sub-sample from 2003 to 2005.

The results of the effects of the interaction between ultimate controlling ownership and state ultimate controllers on firm performance in sub-sample from 2003 to 2005 are shown in Table 4.13. The interaction between ultimate controlling ownership and state ultimate controllers has few effects on firm performance. As the shares were non-tradable before 2005, the ultimate controllers had no incentive to improve firm performance or expropriate minority shareholders. No matter which of the six types the ultimate controller was or how much ownership of the listed firm they owned, the controllers did not affect firm performance. The results of sub-sample from 2006 to 2009 are shown in Table 4.14. During the reform, the firm output, profitability, productivity and operating efficiency was improved when the ultimate controlling ownership increased. The incentives of the state ultimate controller to improve firm performance became stronger when their control power increased. As the reform transformed non-tradable shares into tradable ones, state ownership was expected to be declined. If the ultimate controlling ownership of the state still increased, this implies that the state wished to maintain the control rights of the listed firms and promote the firm performance. The results of

sub-sample from 2010 to 2016 are shown in Table 4.15. After the reform, the firm profitability, productivity and operating efficiency improved when the ultimate controlling ownership increased. The output mission was assigned to the state-controlled firms at an early stage of the market in China. With that objective was accomplished, there was less support from government to promote firm output, so the ultimate controllers had no effect on firm output after 2010.

Insert Table 4.13, 4.14, 4.15

The results of the effects of interaction between ultimate controlling ownership and three administrative levels on firm performance in the sub-sample from 2003 to 2005 are presented in Table 4.16. The increased ultimate controlling ownership of the ultimate controller at Central level decreases the firm value, which is consistent with the discussion of Wei, Xie and Zhang (2005). When the ownership of state controllers decreases, market monitoring becomes effective and firm value increases. The reason I obtain a similar finding to that of Wei, Xie and Zhang (2005) is that I also study ownership percentage and the state shares used by Wei, Xie and Zhang (2005) are mostly held by the state controllers at Central level. The results of sub-sample from 2006 to 2009 are shown in Table 4.17. During the reform, the high-level firm output, profitability and operating efficiency were improved when the ultimate controlling ownership increased. The results imply that if state controllers at Central and Provincial levels wished to maintain the control rights of the listed firms, they had stronger motivations to improve firm performance. The results of sub-sample from 2010 to 2016 are shown in Table 4.18. After the reform, the ultimate controllers at Central and Provincial had no effects on firm output as there was less support from government to promote the firm output, but the ultimate controllers at Central level still have incentives to promote firm profitability and operating efficiency when their ownership increased. Furthermore, none of the state ultimate controllers had a significant effect on the Tobin's Q of the listed firms. The results are not consistent with

Wei, Xie and Zhang (2005)'s study. This is because the state ultimate controllers have no incentives to affect firm value without the government's assignments.

Insert Table 4.16, 4.17, 4.18

4.5 Conclusion

This chapter studies the administrative levels and functions of state ultimate control as well as the state ultimate controlling ownership in listed firms, to provide a comprehensive investigation into the ownership structure in China. I use the new ownership classification to classify the ultimate controllers into six categories and three administrative levels. I apply firm and year as the fixed effects to conduct regression analysis on the effects of state ultimate controller on firm financial and non-financial performance. The chapter contributes to the ownership literature by using ultimate controlling ownership rather than direct ownership to study the ownership within the business groups, as the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010; Chen et al., 2015; Jiang, Rao and Yue, 2015) applies the direct ownership cannot accurately reflect the impact of ultimate control within the business groups.

Firstly, I study the effects of state ultimate controllers on firm performance and show that the SASAC and high administrative-level governmental agencies can positively improve firm output. The state controllers at Central or Municipal levels as ultimate controllers are positively related to firm employment, and the state controllers at the Municipal level as ultimate controllers have a negative impact on firm profitability, productivity, and operating efficiency. Then, I study the effects of the interaction between ultimate controlling ownership and state ultimate controllers on firm performance. I find that the increase of ultimate controlling ownership in the state-controlled listed firms can improve firm productivity and operating efficiency.

I also investigate the effects of the interaction between firm hierarchy and state ultimate controllers on firm performance. The results are not consistent across different performance measures. The extension of firm hierarchy could improve the output of SASAC controlled listed firms, the employment of Department, SASAC and SOE controlled listed firms, but also decrease the Tobin's Q of Government, Asset Bureau, SASAC, SOE and Public Institution controlled listed firms. The extension of firm hierarchy has a two-sided effect on firm performance. I also find that there are more and more ultimate controllers obtaining the control rights from both largest and non-largest shareholders, but the effects of the interaction between the state controllers and control methods are not consistent across different types of ultimate controllers and firm performance. The employment and output are increased when the SASAC gets the control rights from one shareholder. And the profitability would be improved if the Department obtains control rights from multiple shareholders. In the Central-level listed firms, obtaining control rights from one shareholder leads to high employment and output, and obtaining control rights from different shareholders improves profitability.

The positive relationship between the state ultimate controllers and their ownership is of great interest to the regulators. I recommend that the regulators improve state-owned listed firms' productivity and operating efficiency by increasing the controlling power of state ultimate controllers. When the state ultimate controllers urge to increase firm output and employment, they need to extend the internal control structure within the business group and centralise the ownership in one large shareholder.

Tables of Chapter Four

Table 4.1 Ultimate Controlling Ownership and Hierarchy of State-controlled Listed Firms

This table presents the summary statistics of ultimate controlling ownership and hierarchy of state-controlled listed firms. Panel A presents the times that control method changes from one type to another, the number of listed firms with certain times of control method changes in the sample and the proportion of these firms among all firms. Panel B shows the yearly number of listed firms, average ultimate controlling ownership and average hierarchy of ownership structure under different control methods. The table includes three major methods through which the ultimate controller obtains control rights: A The ultimate controller is the upper-level entity of largest shareholders and obtains control rights through control structure; B The ultimate controller is the upper-level entity of non-largest shareholders and obtains control rights through control structure; C The ultimate controller is the upper-level entity of both largest and non-largest shareholders and obtains control rights through control structure. The table also provides the minimum and maximum values of ultimate controlling ownership and firm hierarchy of listed firms under Method A, B and C. The average ultimate controlling ownership and firm hierarchy in all years are shown at the bottom of the table. The sample is from 2003 to 2016.

* Indicates statistical significance at the 10% level. ** Indicates statistical significance at the 5% level.

*** Indicates statistical significance at the 1% level.

Panel A: The Times of Control Methods Change		
The Times of Control Methods Change	Number of Firms	The Proportion of Firms among all Firms(%)
0	2,643	85.9
1	263	8.55
2	124	4.03
3	35	1.14
4	10	0.32
5	1	0.03
6	1	0.03
		Correlation between the Times of Ownership Transfer and the Times of Control Methods Change
3.077		100
		0.424*

Panel B: Ultimate controlling ownership and Hierarchy of state-controlled listed firms							
Controller: State		Control Rights Methods					
Year		A	B	C	Total A.B.C	Mini. Value	Max. Value
2003	Number of Firms	826	4	55	885		
	Ultimate Controlling Ownership	47.503	25.135	49.445	47.522	7.02	85
2004	Hierarchy	1.623	1.5	1.727	1.629	1	6
	Number of Firms	819	6	79	904		
2005	Ultimate Controlling Ownership	47.057	26.898	48.082	47.013	10.04	85
	Hierarchy	2.172	1.833	2.101	2.164	1	6
2006	Number of Firms	798	6	88	892		
	Ultimate Controlling Ownership	45.416	28.887	47.652	45.526	10.05	84.98
2007	Hierarchy	2.217	1.833	2.216	2.214	1	6
	Number of Firms	789	8	107	904		
2008	Ultimate Controlling Ownership	40.917	27.68	42.427	40.979	8.7	98.86
	Hierarchy	2.266	2.25	2.159	2.253	1	6
2009	Number of Firms	795	10	118	923		
	Ultimate Controlling Ownership	40.506	24.705	42.997	40.654	4.83	100
2010	Hierarchy	2.277	2.7	2.153	2.265	1	6
	Number of Firms	796	8	131	935		
2011	Ultimate Controlling Ownership	40.577	24.777	43.949	40.915	3.47	86.71
	Hierarchy	2.361	3	2.26	2.352	1	8
2012	Number of Firms	787	9	153	949		
	Ultimate Controlling Ownership	41.008	25.025	45.701	41.613	8.48	93.61
2013	Hierarchy	2.389	3.111	2.261	2.375	1	8
	Number of Firms	798	8	176	982		
2014	Ultimate Controlling Ownership	40.677	26.84	45.841	41.489	5.83	86.292
	Hierarchy	2.402	3	2.273	2.384	1	8
2015	Number of Firms	781	8	189	978		
	Ultimate Controlling Ownership	41.012	24.298	45.809	41.802	6.41	86.507
2016	Hierarchy	2.435	3.125	2.286	2.412	1	8
	Number of Firms	759	8	221	988		
2017	Ultimate Controlling Ownership	41.29	23.936	47.089	42.446	6.41	86.507
	Hierarchy	2.462	3	2.344	2.44	1	9
2018	Number of Firms	721	12	240	973		
	Ultimate Controlling Ownership	41.61	23.106	46.498	42.587	3.54	89.89
2019	Hierarchy	2.492	2.917	2.317	2.454	1	9
	Number of Firms	705	14	259	978		
2020	Ultimate Controlling Ownership	41.691	26.589	45.983	42.612	3.54	98.039
	Hierarchy	2.484	2.929	2.317	2.446	1	8
2021	Number of Firms	673	12	288	973		
	Ultimate Controlling Ownership	41.53	28.726	45.107	42.431	10.72	99
2022	Hierarchy	2.4609	2.75	2.34	2.437	1	8
	Number of Firms	661	14	319	994		
2023	Ultimate Controlling Ownership	41.394	24.906	44.878	42.28	9.74	90.9091
	Hierarchy	2.475	2.786	2.357	2.442	1	9
All Years	Ultimate Controlling Ownership	42.362	25.753	45.639	42.802	3.47	100
	Average Hierarchy	2.314	2.724	2.276	2.311	1	9

Table 4.2 Correlation Matrix of Main Variables

This table reports the correlations between the main variables, including the ownership variables, performance variables and control variables.

* Indicates statistical significance at the 10%level.

** Indicates statistical significance at the 5%level.

*** Indicates statistical significance at the 1%level.

Variables	Dummy.SASAC	Dummy.Asset Bureau	Dummy.Government	Dummy.Department	Dummy.SOE	Dummy.PublicInstitution	Dummy.CentralLevel	Dummy.ProvincialLevel	Dummy.MunicipalLevel	UltimateControllingOwnership	Hierarchy	ControlMethod.A	ControlMethod.B
Dummy.SASAC	1												
Dummy.AssetBureau	-0.089***	1											
Dummy.Government	-0.121***	-0.021***	1										
Dummy.Department	-0.139***	-0.024***	-0.033***	1									
Dummy.SOE	-0.186***	-0.033***	-0.045***	-0.051***	1								
Dummy.PublicInstitution	-0.085***	-0.015**	-0.020***	-0.023***	-0.031***	1							
Dummy.CentralLevel	0.437***	-0.043***	-0.062***	0.120***	-0.096***	-0.044***	1						
Dummy.ProvincialLevel	0.478***	0.002	0.126***	0.068***	-0.116***	-0.053***	-0.163***	1					
Dummy.MunicipalLevel	0.284***	0.252***	0.214***	0.148***	-0.102***	-0.047***	-0.143***	-0.174***	1				
UltimateControllingOwnership	0.087***	-0.083***	-0.016*	-0.094***	0.060***	-0.109***	0.065***	0.083***	-0.155***	1			
Hierarchy	0.201***	-0.084***	0.028***	0.035***	-0.269***	-0.031***	0.350***	-0.006	-0.116***	-0.043***	1		
ControlMethod.A	0.580***	0.114***	0.166***	0.165***	0.210***	0.093***	0.271***	0.391***	0.335***	-0.044***	0.008	1	
ControlMethod.B	0.034***	0.053***	0.008	0.024***	0.024***	0.005	0.032***	-0.003	0.056***	-0.105***	0.050***	-0.056***	1
ControlMethod.C	0.248***	0.004	0.015**	0.059***	0.087***	0.051***	0.170***	0.115***	0.098***	0.087***	-0.020**	-0.254***	-0.022***
Operating Revenue	0.314***	-0.027***	0.014**	-0.048***	-0.020***	-0.042***	0.185***	0.190***	0.024***	0.179***	0.049***	0.183***	0.028***
Employees	0.250***	-0.006	0.019***	-0.015**	0.002	-0.029***	0.156***	0.119***	0.068***	0.145***	0.032***	0.177***	0.007
ROA	-0.110***	-0.039***	-0.022***	-0.034***	-0.034***	0.006	-0.055***	-0.061***	-0.077***	0.140***	-0.018**	-0.118***	-0.015**
Tobin's Q	-0.087***	-0.024***	-0.037***	-0.005	-0.044***	0.004	-0.023***	-0.061***	-0.062***	-0.072***	0.035***	-0.113***	-0.022***
Operating Revenue per Employee	0.136***	-0.033***	-0.008	-0.049***	-0.037***	-0.022***	0.074***	0.116***	-0.051***	0.075***	0.026***	0.037***	0.028***
Capital Expenditure	0.186***	-0.006	0.011*	-0.019***	-0.009	-0.028***	0.128***	0.132***	-0.014**	0.138***	-0.040***	0.104***	0.015**
ROI	-0.036***	-0.014**	-0.016**	-0.012*	-0.021***	-0.006	-0.009	-0.039***	-0.018***	-0.004	0.035***	-0.057***	0.005
ROS	-0.052***	-0.023***	0.004	0.004	-0.021***	0.005	-0.040***	-0.012*	-0.025***	0.130***	-0.031***	-0.046***	-0.009
Ownership.Director	-0.344***	-0.059***	-0.082***	-0.098***	-0.127***	-0.056***	-0.176***	-0.218***	-0.191***	-0.099***	-0.015*	-0.393***	-0.028***
Ownership.Supervisor	-0.141***	-0.023***	-0.033***	-0.037***	-0.051***	-0.019***	-0.072***	-0.090***	-0.074***	-0.055***	-0.032***	-0.157***	-0.014**
Ownership.Executive	-0.272***	-0.047***	-0.065***	-0.078***	-0.098***	-0.041***	-0.139***	-0.173***	-0.150***	-0.089***	-0.026***	-0.309***	-0.023***
Ownership.Management	-0.347***	-0.059***	-0.083***	-0.098***	-0.128***	-0.054***	-0.177***	-0.220***	-0.192***	-0.105***	-0.017*	-0.395***	-0.029***
SSR	0.344***	0.01	0.050***	0.062***	-0.081***	-0.004	0.152***	0.211***	0.166***	-0.190***	0.201**	0.252***	0.038***
Size	0.318***	-0.020***	0.024***	-0.019***	-0.030***	-0.040***	0.220***	0.188***	0.022***	0.236***	0.002	0.185***	0.026***
Leverage	0.140***	0.003	0.031***	0.021***	0.021***	-0.030***	0.080***	0.105***	0.031***	0.016*	-0.038***	0.112***	0.024***
Age	0.123***	-0.009	-0.023***	-0.002	-0.135***	-0.006	0.016***	0.074***	0.059***	-0.269***	0.146***	-0.038***	0.050***
Crisis	0.085***	0.006	0.012**	0.011*	-0.023***	-0.003	0.040***	0.046***	0.044***	-0.064***	0.026***	0.085***	0.004

(Continued on next page)

Variables	ControlMethod.C	Operating Revenue	Employees	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROI	ROS	Ownership.Director	Ownership.Supervisor	Ownership.Executive	Ownership.Management	SSR	Size	Leverage	Age	Crisis
ControlMethod.C	1																	
Operating Revenue	0.121***	1																
Employees	0.085***	0.705***	1															
ROA	-0.050***	0.103***	0.032***	1														
Tobin's Q	-0.013**	-0.123***	-0.111***	0.021***	1													
Operating Revenue per Employee	0.066***	0.501***	-0.261***	0.110***	-0.031***	1												
Capital Expenditure	0.085***	0.477***	0.414***	0.041***	-0.079***	0.142***	1											
ROI	-0.007	-0.011*	-0.024***	0.047***	0.030***	0.011	-0.025***	1										
ROS	-0.018***	0.109***	-0.006	0.691***	-0.001	0.160***	0.060***	0.036***	1									
Ownership.Director	-0.152***	-0.188***	-0.164***	0.231***	0.089***	-0.058***	-0.104***	0.028***	0.153***	1								
Ownership.Supervisor	-0.061***	-0.092***	-0.069***	0.122***	0.021***	-0.048***	-0.041***	0.012*	0.083***	0.331***	1							
Ownership.Executive	-0.119***	-0.169***	-0.139***	0.205***	0.085***	-0.061***	-0.085***	0.022***	0.135***	0.799***	0.253***	1						
Ownership.Management	-0.152***	-0.191***	-0.164***	0.236***	0.089***	-0.062***	-0.105***	0.029***	0.156***	0.995***	0.399***	0.800***	1					
SSR	0.128***	0.192***	0.121***	-0.172***	-0.010*	0.123***	0.063***	0.005	-0.114***	-0.479***	-0.212***	-0.390***	-0.487***	1				
Size	0.145***	0.860***	0.636***	0.035***	-0.123***	0.410***	0.565***	-0.017**	0.135***	-0.192***	-0.097***	-0.170***	-0.195***	0.173***	1			
Leverage	0.067***	0.134***	0.049***	-0.164***	-0.029***	0.130***	0.212***	-0.019***	-0.051***	-0.180***	-0.079***	-0.149***	-0.183***	0.172***	0.276***	1		
Age	0.121***	0.153***	0.036***	-0.115***	0.105***	0.174***	0.022***	0.046***	-0.074***	-0.180***	-0.113***	-0.148***	-0.185***	0.386***	0.171***	0.110***	1	
Crisis	-0.009	-0.030***	-0.026***	0.051***	0.079***	-0.009	0.002	0.002	0.007	-0.081***	-0.002	-0.061***	-0.081***	0.220***	-0.086***	0.030***	-0.144***	1

Table 4.3 Regression Results of the Effects of State Ultimate Controllers on Firm Performance

This table employs equation 4.a (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results on the effect of state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Independent Variables: State Ultimate Controllers Types							
<i>Dummy.Government</i>	-0.0205 (0.026)	0.0768** (0.036)	-0.0172*** (0.006)	-0.868** (0.339)	-0.102*** (0.035)	-0.00359 (0.066)	-0.0431* (0.023)
<i>Dummy.Department</i>	-0.0263 (0.024)	0.0657* (0.034)	-0.00743 (0.005)	-0.0424 (0.398)	-0.103*** (0.033)	-0.0251 (0.050)	-0.0254 (0.023)
<i>Dummy.AssetBureau</i>	-0.00993 (0.023)	0.0642* (0.035)	-0.0211*** (0.006)	-0.647 (0.495)	-0.0822** (0.037)	-0.0937 (0.062)	-0.0793*** (0.024)
<i>Dummy.SASAC</i>	0.0331* (0.018)	0.0747*** (0.025)	-0.0183*** (0.004)	-0.777*** (0.266)	-0.0500** (0.025)	-0.0706* (0.042)	-0.0545*** (0.015)
<i>Dummy.SOE</i>	-0.00639 (0.020)	0.0650** (0.025)	-0.0155*** (0.004)	-0.185 (0.283)	-0.0778*** (0.026)	-0.0863** (0.042)	-0.0431*** (0.015)
<i>Dummy.PublicInstitution</i>	-0.0901*** (0.027)	-0.00994 (0.042)	-0.0190** (0.007)	-0.665 (0.540)	-0.0844* (0.045)	-0.0696 (0.066)	-0.0650** (0.028)
Control Variables							
<i>Ownership.Director</i>	0.223 (0.176)	0.037 (0.188)	-0.103*** (0.039)	-4.541 (4.498)	0.027 (0.189)	0.279 (0.364)	-0.286*** (0.098)
<i>Ownership.Supervisor</i>	0.0864 (0.343)	-0.486 (0.350)	-0.0111 (0.085)	-13.00** (5.359)	0.18 (0.353)	0.775 (0.473)	-0.0255 (0.160)
<i>Ownership.Executive</i>	-0.00262 (0.033)	-0.0619* (0.035)	0.0582*** (0.011)	-2.258*** (0.839)	0.0522 (0.042)	0.056 (0.081)	0.119*** (0.033)
<i>Ownership.Management</i>	-0.187 (0.174)	-0.0323 (0.190)	0.169*** (0.039)	2.353 (4.363)	0.0145 (0.190)	0.34 (0.347)	0.477*** (0.091)
<i>SSR</i>	0.0615*** (0.006)	0.00107 (0.008)	0.000537 (0.002)	-1.230*** (0.107)	0.0611*** (0.009)	0.00346 (0.016)	-0.00344 (0.006)
<i>Size</i>	0.862*** (0.018)	0.588*** (0.021)	0.0107*** (0.003)	-0.537** (0.273)	0.279*** (0.023)	1.083*** (0.030)	0.113*** (0.012)
<i>Leverage</i>	-0.231** (0.102)	-0.122** (0.059)	-0.0620*** (0.009)	0.804 (0.738)	-0.0986* (0.057)	0.105 (0.100)	-0.135*** (0.045)
<i>Age</i>	0.000471 (0.001)	-0.00905*** (0.002)	-0.00106*** (0.000)	0.351*** (0.023)	0.00895*** (0.002)	-0.0334*** (0.002)	-0.00720*** (0.001)
<i>Crisis</i>	0.0122*** (0.003)	-0.0176*** (0.004)	0.0122*** (0.001)	2.011*** (0.077)	0.0297*** (0.005)	-0.014 (0.009)	0.0200*** (0.003)
Constant	0.970*** (0.151)	-2.184*** (0.185)	-0.0457* (0.025)	5.271** (2.347)	3.120*** (0.205)	-1.851*** (0.264)	-0.889*** (0.099)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.722	0.367	0.049	0.085	0.208	0.285	0.039

Table 4.4 Regression Results of the Effects of Three Administrative Levels on Firm Performance

This table employs equation 4.b (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the effect of three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Administrative Levels	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.CentralLevel</i>	0.0407*** (0.012)	0.0591*** (0.017)	-0.00698** (0.003)	-0.547*** (0.206)	-0.0215 (0.018)	-0.0268 (0.030)	-0.0306** (0.012)
<i>Dummy.ProvincialLevel</i>	0.0314** (0.016)	-0.00274 (0.021)	-0.000597 (0.004)	-0.516** (0.214)	0.0268 (0.023)	0.0559 (0.038)	-0.00999 (0.013)
<i>Dummy.MunicipalLevel</i>	0.000706 (0.014)	0.0577*** (0.020)	-0.0147*** (0.004)	-0.534** (0.234)	-0.0600*** (0.019)	-0.0572 (0.036)	-0.0325** (0.013)
Control Variables							
<i>Ownership.Director</i>	0.221 (0.176)	0.0191 (0.189)	-0.0979** (0.039)	-4.496 (4.496)	0.0459 (0.190)	0.314 (0.363)	-0.276*** (0.097)
<i>Ownership.Supervisor</i>	0.0908 (0.343)	-0.491 (0.352)	-0.00935 (0.085)	-12.96** (5.362)	0.19 (0.355)	0.782* (0.472)	-0.0199 (0.160)
<i>Ownership.Executive</i>	-0.00255 (0.033)	-0.0631* (0.035)	0.0585*** (0.011)	-2.253*** (0.839)	0.0537 (0.042)	0.0569 (0.081)	0.120*** (0.033)
<i>Ownership.Management</i>	-0.183 (0.174)	-0.025 (0.191)	0.167*** (0.039)	2.327 (4.355)	0.0101 (0.191)	0.319 (0.345)	0.474*** (0.090)
<i>SSR</i>	0.0668*** (0.006)	-0.00329 (0.008)	0.00139 (0.002)	-1.243*** (0.106)	0.0717*** (0.009)	0.00726 (0.016)	-0.000107 (0.006)
<i>Size</i>	0.861*** (0.018)	0.590*** (0.021)	0.0104*** (0.003)	-0.547** (0.274)	0.275*** (0.023)	1.080*** (0.030)	0.111*** (0.012)
<i>Leverage</i>	-0.228** (0.102)	-0.123** (0.058)	-0.0624*** (0.009)	0.785 (0.737)	-0.0945 (0.058)	0.105 (0.099)	-0.136*** (0.046)
<i>Age</i>	0.000684 (0.001)	-0.00954*** (0.002)	-0.000978*** (0.000)	0.352*** (0.022)	0.00971*** (0.002)	-0.0330*** (0.002)	-0.00679*** (0.001)
<i>Crisis</i>	0.0122*** (0.003)	-0.0183*** (0.004)	0.0123*** (0.001)	2.011*** (0.077)	0.0304*** (0.005)	-0.0134 (0.009)	0.0204*** (0.003)
Constant	0.967*** (0.151)	-2.174*** (0.183)	-0.0503** (0.024)	5.257** (2.344)	3.108*** (0.204)	-1.863*** (0.262)	-0.896*** (0.099)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.721	0.367	0.047	0.084	0.207	0.285	0.037

Table 4.5 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Firm Performance

This table employs equation 4.c (See the detailed interpretation of variables in the methodology, section 4.3) to test the hypothesis 3a, 3b, 3c, 3d and presents the regression results about the interaction effect of ultimate controlling ownership and state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Types X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.Government X Ultimate Controlling Ownership</i>	0.000116 (0.001)	-0.00205* (0.001)	0.000699*** (0.000)	-0.00614 (0.008)	0.00216** (0.001)	0.000646 (0.002)	0.00243*** (0.001)
<i>Dummy.Department X Ultimate Controlling Ownership</i>	2.09E-05 (0.001)	-0.00205** (0.001)	0.000841*** (0.000)	0.00516 (0.009)	0.00210** (0.001)	0.00115 (0.001)	0.00313*** (0.000)
<i>Dummy.AssetBureau X Ultimate Controlling Ownership</i>	-0.000272 (0.001)	-0.00248** (0.001)	0.000597*** (0.000)	0.00543 (0.009)	0.00216* (0.001)	-0.000937 (0.002)	0.00156*** (0.001)
<i>Dummy.SASAC X Ultimate Controlling Ownership</i>	0.000879* (0.001)	-0.00202** (0.001)	0.000648*** (0.000)	-0.00317 (0.007)	0.00285*** (0.001)	-0.000224 (0.001)	0.00232*** (0.000)
<i>Dummy.SOE X Ultimate Controlling Ownership</i>	0.000116 (0.001)	-0.00232*** (0.001)	0.000668*** (0.000)	0.00246 (0.007)	0.00238*** (0.001)	-0.000149 (0.001)	0.00238*** (0.000)
<i>Dummy.PublicInstitution X Ultimate Controlling Ownership</i>	-0.00182** (0.001)	-0.00478*** (0.001)	0.000637*** (0.000)	-0.0191 (0.013)	0.00296** (0.001)	0.000218 (0.002)	0.00231*** (0.001)
Control Variables							
<i>Ownership.Director</i>	-0.389 (1.094)	0.0209 (1.376)	0.0172 (0.270)	38.31** (18.430)	-0.646 (1.630)	0.738 (2.312)	-0.35 (0.699)
<i>Ownership.Supervisor</i>	-0.267 (1.383)	-1.05 (1.602)	-0.0549 (0.356)	-4.356 (23.270)	0.463 (1.944)	-3.136 (3.062)	-0.902 (0.821)
<i>Ownership.Executive</i>	0.501 (0.539)	-0.31 (0.416)	0.109 (0.105)	9.129 (8.153)	0.791 (0.711)	1.471 (1.335)	-0.129 (0.323)
<i>Ownership.Management</i>	0.183 (1.088)	0.0973 (1.374)	0.266 (0.269)	-40.80** (18.480)	0.325 (1.580)	0.271 (2.315)	1.138 (0.730)
<i>SSR</i>	0.0622*** (0.007)	-0.0111 (0.009)	0.00288 (0.002)	-0.520*** (0.108)	0.0726*** (0.010)	0.0243 (0.019)	-0.000137 (0.007)
<i>Size</i>	0.863*** (0.023)	0.603*** (0.031)	0.00582 (0.004)	-2.466*** (0.370)	0.269*** (0.033)	1.086*** (0.042)	0.0705*** (0.017)
<i>Leverage</i>	-0.323*** (0.080)	-0.193*** (0.067)	-0.0585*** (0.013)	2.792*** (0.861)	-0.121* (0.068)	0.304*** (0.111)	-0.190*** (0.052)
<i>Age</i>	0.00149 (0.002)	-0.00848*** (0.002)	-0.00114*** (0.000)	0.327*** (0.029)	0.00936*** (0.002)	-0.0350*** (0.003)	-0.00590*** (0.001)
<i>Crisis</i>	0.0129*** (0.004)	-0.0173*** (0.006)	0.00834*** (0.001)	1.985*** (0.097)	0.0296*** (0.007)	0.0134 (0.012)	0.0153*** (0.004)
<i>Constant</i>	0.967*** (0.200)	-2.153*** (0.280)	-0.0367 (0.037)	22.51*** (3.140)	3.052*** (0.302)	-1.896*** (0.371)	-0.627*** (0.142)
Observations	11,417	11,474	11,554	11,470	11,324	11,437	11,509
Number of Firms	1,257	1,257	1,267	1,269	1,252	1,258	1,265
R-squared	0.732	0.349	0.042	0.108	0.208	0.255	0.046

Table 4.6 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and Three Administrative Levels on Firm Performance

This table employs equation 4.d (See the detailed interpretation of variables in the methodology, section 4.3) to test the hypothesis 3a, 3b, 3c, 3d and presents the regression results about the interaction effect of ultimate controlling ownership and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Independent Variables: State Ultimate Controllers Administrative Levels X Ultimate Controlling Ownership							
<i>Dummy.CentralLevel X Ultimate Controlling Ownership</i>	0.000863*** (0.000)	0.000537* (0.000)	8.91E-05 (0.000)	-0.00482 (0.004)	0.000323 (0.000)	-0.00076 (0.001)	0.000232 (0.000)
<i>Dummy.ProvincialLevel X Ultimate Controlling Ownership</i>	0.000931*** (0.000)	-0.00111** (0.000)	0.000292*** (0.000)	-0.00253 (0.004)	0.00203*** (0.001)	0.00112 (0.001)	0.000919*** (0.000)
<i>Dummy.MunicipalLevel X Ultimate Controlling Ownership</i>	-9.19E-05 (0.000)	0.000456 (0.000)	1.24E-05 (0.000)	-0.00166 (0.005)	-0.000532 (0.000)	-0.00046 (0.001)	0.000239 (0.000)
Control Variables							
<i>Ownership.Director</i>	-0.424 (1.093)	-0.0778 (1.402)	0.0462 (0.262)	38.91** (18.520)	-0.579 (1.631)	0.837 (2.294)	-0.278 (0.685)
<i>Ownership.Supervisor</i>	-0.307 (1.373)	-1.226 (1.632)	-0.0151 (0.365)	-4.74 (23.490)	0.6 (1.968)	-3.026 (3.054)	-0.758 (0.839)
<i>Ownership.Executive</i>	0.494 (0.537)	-0.233 (0.415)	0.0895 (0.110)	9.08 (8.154)	0.708 (0.705)	1.367 (1.342)	-0.198 (0.344)
<i>Ownership.Management</i>	0.217 (1.086)	0.245 (1.400)	0.22 (0.263)	-41.40** (18.550)	0.21 (1.576)	0.195 (2.298)	1.015 (0.729)
<i>SSR</i>	0.0665*** (0.006)	0.00377 (0.008)	-0.00126 (0.002)	-0.557*** (0.103)	0.0622*** (0.009)	0.0225 (0.018)	-0.0133** (0.007)
<i>Size</i>	0.865*** (0.023)	0.591*** (0.032)	0.00937** (0.004)	-2.477*** (0.364)	0.282*** (0.034)	1.081*** (0.042)	0.0829*** (0.017)
<i>Leverage</i>	-0.322*** (0.080)	-0.197*** (0.067)	-0.0580*** (0.013)	2.781*** (0.861)	-0.115* (0.068)	0.301*** (0.111)	-0.189*** (0.053)
<i>Age</i>	0.00144 (0.002)	-0.00657*** (0.002)	-0.00171*** (0.000)	0.326*** (0.028)	0.00741*** (0.002)	-0.0348*** (0.003)	-0.00777*** (0.001)
<i>Crisis</i>	0.0123*** (0.004)	-0.0127** (0.006)	0.00708*** (0.001)	1.987*** (0.095)	0.0245*** (0.006)	0.0137 (0.012)	0.0109*** (0.004)
Constant	0.950*** (0.200)	-2.161*** (0.282)	-0.0362 (0.037)	22.66*** (3.132)	3.044*** (0.302)	-1.857*** (0.369)	-0.626*** (0.143)
Observations	11,417	11,474	11,554	11,470	11,324	11,437	11,509
Number of Firms	1,257	1,257	1,267	1,269	1,252	1,258	1,265
R-squared	0.731	0.348	0.035	0.107	0.21	0.256	0.036

Table 4.7 Regression Results of the Effects of Interaction between Firm Hierarchy and State Ultimate Controllers on Firm Performance

This table employs equation 4.e (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of firm hierarchy and state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between firm hierarchy and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Types X Hierarchy	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.Government X Hierarchy</i>	0.000583 (0.010)	0.0246 (0.016)	-0.00307 (0.003)	-0.342** (0.143)	-0.0197 (0.017)	0.0351 (0.027)	-0.009 (0.009)
<i>Dummy.Department X Hierarchy</i>	-0.00293 (0.009)	0.0240** (0.012)	0.000964 (0.002)	-0.0657 (0.168)	-0.0238* (0.014)	0.0361* (0.019)	0.00483 (0.007)
<i>Dummy.AssetBureau X Hierarchy</i>	-0.000649 (0.010)	0.00135 (0.019)	-0.000963 (0.003)	-0.277** (0.138)	0.000757 (0.018)	-0.00288 (0.032)	-0.0183 (0.012)
<i>Dummy.SASAC X Hierarchy</i>	0.0127** (0.006)	0.0205** (0.010)	-0.00275 (0.002)	-0.289*** (0.096)	-0.00687 (0.010)	0.00464 (0.013)	-0.00861* (0.005)
<i>Dummy.SOE X Hierarchy</i>	0.00193 (0.009)	0.0316** (0.016)	-0.0036 (0.002)	-0.285* (0.165)	-0.0264 (0.017)	0.0111 (0.020)	-0.0116 (0.008)
<i>Dummy.PublicInstitution X Hierarchy</i>	-0.0272** (0.013)	0.00182 (0.020)	-0.00293 (0.003)	-0.584** (0.237)	-0.0251 (0.020)	0.0241 (0.034)	-0.00965 (0.011)
Control Variables							
<i>Ownership.Director</i>	-0.351 (1.088)	0.0812 (1.420)	0.0185 (0.261)	38.01** (18.760)	-0.667 (1.637)	0.76 (2.309)	-0.373 (0.694)
<i>Ownership.Supervisor</i>	-0.372 (1.385)	-1.179 (1.662)	-0.031 (0.368)	-8.093 (23.250)	0.511 (2.016)	-3.042 (3.107)	-0.885 (0.866)
<i>Ownership.Executive</i>	0.508 (0.540)	-0.303 (0.421)	0.0993 (0.108)	9.728 (8.197)	0.789 (0.695)	1.474 (1.330)	-0.16 (0.341)
<i>Ownership.Management</i>	0.146 (1.081)	0.105 (1.420)	0.24 (0.262)	-40.50** (18.790)	0.279 (1.586)	0.227 (2.315)	1.069 (0.739)
<i>SSR</i>	0.0646*** (0.006)	-0.00103 (0.009)	0.000672 (0.002)	-0.506*** (0.106)	0.0656*** (0.010)	0.0248 (0.018)	-0.0083 (0.007)
<i>Size</i>	0.872*** (0.023)	0.592*** (0.032)	0.0105** (0.004)	-2.539*** (0.368)	0.287*** (0.034)	1.087*** (0.042)	0.0869*** (0.017)
<i>Leverage</i>	-0.324*** (0.080)	-0.194*** (0.067)	-0.0575*** (0.013)	2.788*** (0.857)	-0.121* (0.069)	0.307*** (0.110)	-0.187*** (0.053)
<i>Age</i>	0.000767 (0.002)	-0.00729*** (0.002)	-0.00162*** (0.000)	0.337*** (0.028)	0.00746*** (0.002)	-0.0352*** (0.003)	-0.00762*** (0.001)
<i>Crisis</i>	0.0117*** (0.004)	-0.0133** (0.006)	0.00715*** (0.001)	2.001*** (0.095)	0.0245*** (0.006)	0.0127 (0.012)	0.0110*** (0.004)
Constant	0.902*** (0.200)	-2.218*** (0.283)	-0.0385 (0.039)	23.61*** (3.220)	3.045*** (0.300)	-1.933*** (0.376)	-0.632*** (0.145)
Observations	11,415	11,472	11,552	11,468	11,322	11,435	11,507
Number of Firms	1,257	1,257	1,267	1,269	1,252	1,258	1,265
R-squared	0.731	0.347	0.033	0.109	0.205	0.256	0.034

Table 4.8 Regression Results of the Effects of Interaction between Firm Hierarchy and Three Administrative Level on Firm Performance

This table employs equation 4.f (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of firm hierarchy and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between firm hierarchy and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Administrative Levels X Hierarchy	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.CentralLevel X Hierarchy</i>	0.0105*** (0.003)	0.0117** (0.006)	0.000246 (0.001)	-0.08 (0.062)	-0.00141 (0.006)	-8.98E-06 (0.009)	-0.001 (0.003)
<i>Dummy.ProvincialLevel X Hierarchy</i>	0.0118** (0.005)	-0.00777 (0.008)	3.70E-05 (0.001)	-0.144* (0.081)	0.0181** (0.008)	0.021 (0.013)	0.000714 (0.004)
<i>Dummy.MunicipalLevel X Hierarchy</i>	0.00157 (0.007)	0.0113 (0.009)	-0.00319* (0.002)	-0.0604 (0.098)	-0.00745 (0.008)	-0.00344 (0.017)	-0.00375 (0.005)
Control Variables							
<i>Ownership.Director</i>	-0.401 (1.089)	-0.0107 (1.417)	0.0376 (0.259)	38.55** (18.580)	-0.635 (1.653)	0.84 (2.296)	-0.31 (0.677)
<i>Ownership.Supervisor</i>	-0.258 (1.372)	-1.231 (1.656)	-0.000359 (0.361)	-4.796 (23.490)	0.64 (2.000)	-3.031 (3.040)	-0.722 (0.832)
<i>Ownership.Executive</i>	0.497 (0.538)	-0.237 (0.423)	0.0903 (0.109)	9.259 (8.233)	0.718 (0.711)	1.387 (1.346)	-0.196 (0.343)
<i>Ownership.Management</i>	0.186 (1.083)	0.183 (1.419)	0.218 (0.260)	-41.17** (18.620)	0.251 (1.601)	0.199 (2.302)	1.017 (0.722)
<i>SSR</i>	0.0675*** (0.006)	-0.000152 (0.008)	0.000433 (0.002)	-0.528*** (0.107)	0.0671*** (0.009)	0.0196 (0.018)	-0.00848 (0.007)
<i>Size</i>	0.872*** (0.023)	0.589*** (0.032)	0.0109** (0.004)	-2.515*** (0.366)	0.291*** (0.034)	1.084*** (0.042)	0.0878*** (0.017)
<i>Leverage</i>	-0.321*** (0.080)	-0.198*** (0.068)	-0.0578*** (0.013)	2.766*** (0.862)	-0.115* (0.069)	0.303*** (0.111)	-0.188*** (0.053)
<i>Age</i>	0.000929 (0.002)	-0.00689*** (0.002)	-0.00171*** (0.000)	0.332*** (0.028)	0.00722*** (0.002)	-0.0354*** (0.003)	-0.00783*** (0.001)
<i>Crisis</i>	0.0117*** (0.004)	-0.0132** (0.006)	0.00710*** (0.001)	1.996*** (0.095)	0.0242*** (0.006)	0.0128 (0.012)	0.0108*** (0.004)
Constant	0.895*** (0.202)	-2.152*** (0.285)	-0.0446 (0.038)	23.02*** (3.156)	2.980*** (0.308)	-1.890*** (0.372)	-0.655*** (0.146)
Observations	11,415	11,472	11,552	11,468	11,322	11,435	11,507
Number of Firms	1,257	1,257	1,267	1,269	1,252	1,258	1,265
R-squared	0.731	0.346	0.032	0.107	0.204	0.255	0.032

Table 4.9 Regression Results of the Effects of Interaction between Control Methods and State Ultimate Controllers on Firm Performance

This table employs equation 4.g (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of control methods and six types of state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between control methods and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Types X Control Methods	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Dummy.Government x ControlMethod.A	-0.0224 (0.025)	0.0624* (0.034)	-0.0144** (0.006)	-0.688** (0.336)	-0.0897** (0.035)	0.00253 (0.063)	-0.0316 (0.024)
Dummy.Government x ControlMethod.B	-0.0414 (0.053)	0.178* (0.093)	-0.0381*** (0.013)	-2.406*** (0.324)	-0.224*** (0.045)	0.219*** (0.062)	-0.0855** (0.042)
Dummy.Government x ControlMethod.C	0.0421 (0.069)	0.16 (0.098)	-0.0200** (0.009)	-1.048 (0.658)	-0.126 (0.087)	-0.0575 (0.171)	-0.0418 (0.029)
Dummy.Department x ControlMethod.A	-0.028 (0.025)	0.0562 (0.034)	-0.00746 (0.005)	0.204 (0.407)	-0.0924*** (0.034)	0.00498 (0.052)	-0.0135 (0.023)
Dummy.Department x ControlMethod.B	0.00754 (0.059)	0.0714 (0.046)	0.0286*** (0.007)	-0.383 (0.444)	-0.0706** (0.036)	0.130*** (0.041)	0.0348* (0.020)
Dummy.Department x ControlMethod.C	0.0109 (0.034)	0.0882 (0.056)	0.00278 (0.007)	-0.749 (0.628)	-0.0888* (0.050)	-0.137* (0.082)	-0.0158 (0.027)
Dummy.AssetBureau x ControlMethod.A	-0.0136 (0.025)	0.0528 (0.034)	-0.0156*** (0.006)	-0.518 (0.498)	-0.0755** (0.037)	-0.0789 (0.066)	-0.0678*** (0.026)
Dummy.AssetBureau x ControlMethod.B	0.0331 (0.045)	0.115 (0.090)	-0.0597** (0.027)	-4.318*** (1.325)	-0.0857* (0.049)	-0.158 (0.158)	-0.0794*** (0.030)
Dummy.AssetBureau x ControlMethod.C	0.0313 (0.031)	0.0954 (0.101)	-0.0294*** (0.011)	-0.391 (0.794)	-0.0628 (0.090)	-0.161** (0.070)	-0.0670* (0.036)
Dummy.SASAC x ControlMethod.A	0.0377** (0.017)	0.0686*** (0.024)	-0.0168*** (0.004)	-0.561** (0.260)	-0.0397 (0.024)	-0.0633 (0.040)	-0.0445*** (0.015)
Dummy.SASAC x ControlMethod.B	0.0212 (0.034)	0.0187 (0.071)	-0.0113 (0.007)	-1.142* (0.597)	-0.00896 (0.066)	0.0755 (0.070)	-0.0403 (0.030)
Dummy.SASAC x ControlMethod.C	0.0283 (0.021)	0.0653** (0.027)	-0.0133*** (0.005)	-1.062*** (0.281)	-0.0433 (0.029)	-0.0671 (0.045)	-0.0418** (0.017)
Dummy.SOE x ControlMethod.A	-0.00407 (0.020)	0.0638** (0.025)	-0.0117*** (0.004)	-0.149 (0.272)	-0.0745*** (0.026)	-0.0845** (0.042)	-0.0291** (0.015)
Dummy.SOE x ControlMethod.B	0.142* (0.083)	-0.103 (0.077)	0.00695 (0.035)	1.226** (0.491)	0.195** (0.077)	0.154 (0.220)	0.152 (0.159)
Dummy.SOE x ControlMethod.C	-0.00258 (0.025)	0.0209 (0.034)	-0.0168*** (0.006)	0.242 (0.414)	-0.0269 (0.036)	-0.0414 (0.052)	-0.0366* (0.020)
Dummy.PublicInstitution x ControlMethod.A	-0.0905*** (0.027)	-0.0187 (0.036)	-0.0240*** (0.007)	-0.706 (0.457)	-0.0745* (0.038)	-0.113* (0.068)	-0.0673** (0.028)
Dummy.PublicInstitution x ControlMethod.B	-0.230*** (0.024)	0.386*** (0.037)	0.0172*** (0.006)	-4.964*** (0.519)	-0.624*** (0.041)	0.476*** (0.062)	0.0379 (0.025)
Dummy.PublicInstitution x ControlMethod.C	-0.0355 (0.039)	-0.00638 (0.097)	0.00847 (0.015)	-0.0597 (1.485)	-0.035 (0.112)	0.11 (0.098)	-0.0232 (0.038)

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Control Variables							
<i>Ownership.Director</i>	0.223 (0.177)	0.039 (0.188)	-0.100** (0.039)	-4.573 (4.488)	0.0245 (0.190)	0.288 (0.363)	-0.281*** (0.098)
<i>Ownership.Supervisor</i>	0.0885 (0.344)	-0.487 (0.351)	-0.0102 (0.085)	-12.92** (5.337)	0.181 (0.354)	0.782* (0.473)	-0.0215 (0.160)
<i>Ownership.Executive</i>	-0.00281 (0.033)	-0.0617* (0.035)	0.0581*** (0.011)	-2.246*** (0.838)	0.0519 (0.042)	0.0559 (0.081)	0.119*** (0.033)
<i>Ownership.Management</i>	-0.186 (0.174)	-0.0363 (0.191)	0.167*** (0.039)	2.435 (4.352)	0.0194 (0.191)	0.334 (0.346)	0.474*** (0.090)
<i>SSR</i>	0.0615*** (0.006)	0.00132 (0.008)	0.00107 (0.002)	-1.247*** (0.107)	0.0609*** (0.009)	0.00334 (0.016)	-0.00235 (0.006)
<i>Size</i>	0.861*** (0.018)	0.588*** (0.021)	0.0102*** (0.003)	-0.532* (0.274)	0.277*** (0.023)	1.082*** (0.030)	0.112*** (0.012)
<i>Leverage</i>	-0.231** (0.102)	-0.121** (0.058)	-0.0620*** (0.009)	0.795 (0.732)	-0.0995* (0.058)	0.103 (0.099)	-0.136*** (0.046)
<i>Age</i>	0.000533 (0.001)	-0.00925*** (0.002)	-0.00103*** (0.000)	0.357*** (0.023)	0.00919*** (0.002)	-0.0332*** (0.002)	-0.00701*** (0.001)
<i>Crisis</i>	0.0120*** (0.003)	-0.0180*** (0.004)	0.0124*** (0.001)	2.011*** (0.077)	0.0298*** (0.005)	-0.0138 (0.009)	0.0204*** (0.003)
Constant	0.974*** (0.152)	-2.181*** (0.185)	-0.0437* (0.024)	5.089** (2.353)	3.122*** (0.206)	-1.849*** (0.265)	-0.887*** (0.099)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.722	0.368	0.05	0.086	0.208	0.286	0.039

Table 4.10 Regression Results of the Effects of Interaction between Control Methods and Three Administrative Levels on Firm Performance

This table employs equation 4.h (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of control methods and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between control methods and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Administrative Levels X Control Methods	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Dummy.CentralLevel X ControlMethod.A	0.0505*** (0.013)	0.0633*** (0.018)	-0.00869*** (0.003)	-0.448** (0.220)	-0.0147 (0.019)	-0.0279 (0.032)	-0.0288** (0.013)
Dummy.CentralLevel X ControlMethod.B	-0.0132 (0.049)	0.0377 (0.113)	0.0173** (0.009)	-1.281*** (0.353)	-0.0531 (0.084)	0.182** (0.071)	0.016 (0.025)
Dummy.CentralLevel X ControlMethod.C	0.0195 (0.023)	0.0534* (0.032)	-0.00515 (0.005)	-0.761*** (0.277)	-0.0369 (0.032)	-0.0321 (0.045)	-0.0339** (0.017)
Dummy.ProvincialLevel X ControlMethod.A	0.0266* (0.016)	-0.00761 (0.022)	-0.00174 (0.004)	-0.289 (0.231)	0.026 (0.024)	0.0565 (0.039)	-0.0119 (0.013)
Dummy.ProvincialLevel X ControlMethod.B	0.067 (0.041)	-0.0445 (0.169)	0.0112 (0.009)	-0.508 (0.690)	0.107 (0.196)	0.212 (0.152)	0.0368* (0.020)
Dummy.ProvincialLevel X ControlMethod.C	0.0514** (0.025)	0.00863 (0.029)	0.00385 (0.005)	-1.215*** (0.271)	0.0393 (0.032)	0.0328 (0.055)	0.00237 (0.019)
Dummy.MunicipalLevel X ControlMethod.A	-0.000654 (0.014)	0.0543*** (0.021)	-0.0134*** (0.004)	-0.427* (0.233)	-0.0579*** (0.019)	-0.0504 (0.036)	-0.0282** (0.013)
Dummy.MunicipalLevel X ControlMethod.B	-0.009 (0.046)	0.0745* (0.042)	-0.0315** (0.012)	-1.980** (0.915)	-0.0848*** (0.026)	-0.00191 (0.084)	-0.0926 (0.062)
Dummy.MunicipalLevel X ControlMethod.C	0.00618 (0.023)	0.0719** (0.032)	-0.0133** (0.006)	-0.732* (0.403)	-0.0669* (0.037)	-0.1 (0.061)	-0.0317* (0.018)
Control Variables							
<i>Ownership.Director</i>	0.222 (0.176)	0.0199 (0.189)	-0.0976** (0.039)	-4.548 (4.483)	0.0462 (0.190)	0.314 (0.363)	-0.275*** (0.097)
<i>Ownership.Supervisor</i>	0.0904 (0.343)	-0.492 (0.352)	-0.00961 (0.086)	-12.92** (5.337)	0.191 (0.356)	0.786* (0.472)	-0.02 (0.160)
<i>Ownership.Executive</i>	-0.00272 (0.033)	-0.0633* (0.035)	0.0585*** (0.011)	-2.238*** (0.838)	0.0538 (0.042)	0.0578 (0.082)	0.120*** (0.033)
<i>Ownership.Management</i>	-0.184 (0.174)	-0.0267 (0.191)	0.166*** (0.039)	2.428 (4.342)	0.0099 (0.191)	0.321 (0.345)	0.474*** (0.090)
<i>SSR</i>	0.0665*** (0.006)	-0.00334 (0.008)	0.00151 (0.002)	-1.257*** (0.107)	0.0714*** (0.009)	0.00739 (0.016)	-0.000221 (0.006)
<i>Size</i>	0.861*** (0.018)	0.590*** (0.021)	0.0101*** (0.003)	-0.536* (0.274)	0.276*** (0.023)	1.081*** (0.030)	0.110*** (0.012)
<i>Leverage</i>	-0.227** (0.101)	-0.122** (0.058)	-0.0626*** (0.009)	0.782 (0.734)	-0.0947 (0.058)	0.104 (0.099)	-0.136*** (0.046)
<i>Age</i>	0.00065 (0.001)	-0.00963*** (0.002)	-0.000986*** (0.000)	0.358*** (0.023)	0.00974*** (0.002)	-0.0329*** (0.002)	-0.00678*** (0.001)
<i>Crisis</i>	0.0121*** (0.003)	-0.0184*** (0.004)	0.0124*** (0.001)	2.009*** (0.077)	0.0303*** (0.005)	-0.0135 (0.009)	0.0205*** (0.003)
Constant	0.967*** (0.151)	-2.171*** (0.184)	-0.0479** (0.024)	5.064** (2.347)	3.104*** (0.204)	-1.872*** (0.262)	-0.893*** (0.099)
Observations	22,987	23,045	23,059	23,018	22,773	23,031	23,019
Number of Firms	2,822	2,827	2,828	2,839	2,817	2,824	2,830
R-squared	0.721	0.367	0.047	0.085	0.207	0.285	0.037

Table 4.11 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Alternative Firm Performance

This table employs equation 4.c (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and state ultimate controllers on alternative firm performance. The firm performance measures include firm output (operating profit) in column 2, profitability (net profit margin) in column 3, labour productivity (operating profit per employee) in column 4, operating efficiency (expense ratio) in column 5. The table shows the coefficients of interaction between ultimate controlling ownership and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis. The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Types X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures			
	Operating Profit	Net Profit Margin	Operating Profit per Employee	Expense Ratio
<i>Dummy.Government X Ultimate Controlling Ownership</i>	0.00423*** (0.001)	0.00193*** (0.001)	0.00556*** (0.002)	-0.000759*** (0.000)
<i>Dummy.Department X Ultimate Controlling Ownership</i>	0.00499*** (0.001)	0.00270*** (0.000)	0.00660*** (0.002)	-0.000733*** (0.000)
<i>Dummy.AssetBureau X Ultimate Controlling Ownership</i>	0.00402*** (0.001)	0.00118** (0.001)	0.00653*** (0.002)	-0.000411** (0.000)
<i>Dummy.SASAC X Ultimate Controlling Ownership</i>	0.00442*** (0.001)	0.00187*** (0.000)	0.00624*** (0.001)	-0.000631*** (0.000)
<i>Dummy.SOE X Ultimate Controlling Ownership</i>	0.00430*** (0.001)	0.00195*** (0.000)	0.00656*** (0.001)	-0.000516*** (0.000)
<i>Dummy.PublicInstitution X Ultimate Controlling Ownership</i>	0.00152 (0.002)	0.00205*** (0.001)	0.00576*** (0.002)	-6.88E-05 (0.000)
Control Variables				
<i>Ownership.Director</i>	3.179* (1.794)	-0.0767 (0.567)	2.811 (2.084)	0.159 (0.185)
<i>Ownership.Supervisor</i>	0.83 (1.917)	-0.553 (0.625)	0.965 (2.254)	0.546** (0.231)
<i>Ownership.Executive</i>	1.422 (1.053)	-0.121 (0.295)	1.531 (1.158)	-0.0408 (0.084)
<i>Ownership.Management</i>	-1.422 (1.721)	0.786 (0.594)	-0.924 (2.118)	-0.318* (0.192)
SSR	0.0394** (0.017)	0.00166 (0.007)	0.0552*** (0.020)	-0.00214 (0.002)
Size	0.827*** (0.040)	0.0411*** (0.014)	0.225*** (0.058)	-0.0116** (0.005)
Leverage	-0.569*** (0.103)	-0.146*** (0.042)	-0.352*** (0.128)	0.134*** (0.015)
Age	-0.00449 (0.003)	-0.00263** (0.001)	0.00138 (0.004)	0.00121*** (0.000)
Crisis	0.0583*** (0.011)	0.0171*** (0.003)	0.0778*** (0.012)	-0.00410*** (0.001)
Constant	0.0591 (0.355)	-0.380*** (0.116)	2.253*** (0.526)	0.190*** (0.047)
Observations	9,407	11,535	9,290	11,546
Number of Firms	1,229	1,265	1,217	1,266
R-squared	0.268	0.028	0.041	0.068

Table 4.12 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and Three Administrative Levels on Alternative Firm Performance

This table employs equation 4.d (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and three administrative levels on alternative firm performance. The firm performance measures include firm output (operating profit) in column 2, profitability (net profit margin) in column 3, labour productivity (operating profit per employee) in column 4, operating efficiency (expense ratio) in column 5. The table shows the coefficients of interaction between ultimate controlling ownership and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, Split Share Reform, firm size, firm age, leverage, and financial crisis.

The sample is yearly from 2003 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

	Dependent Variables: Firm Performance Measures			
	Operating Profit	Net Profit Margin	Operating Profit per Employee	Expense Ratio
Independent Variables: State Ultimate Controllers Administrative Levels X Ultimate Controlling Ownership				
<i>Dummy.CentralLevel X Ultimate Controlling Ownership</i>	0.00157** (0.001)	0.000145 (0.000)	0.000851 (0.001)	-0.000178*** (0.000)
<i>Dummy.ProvincialLevel X Ultimate Controlling Ownership</i>	0.000807 (0.001)	0.000768*** (0.000)	0.00155* (0.001)	-0.000435*** (0.000)
<i>Dummy.MunicipalLevel X Ultimate Controlling Ownership</i>	0.000968 (0.001)	0.000159 (0.000)	0.000508 (0.001)	-7.22E-05 (0.000)
Control Variables				
<i>Ownership.Director</i>	3.165* (1.810)	-0.0122 (0.564)	2.883 (2.125)	0.142 (0.193)
<i>Ownership.Supervisor</i>	0.836 (1.943)	-0.423 (0.650)	1.097 (2.359)	0.527** (0.233)
<i>Ownership.Executive</i>	1.328 (1.075)	-0.182 (0.313)	1.364 (1.218)	-0.0181 (0.096)
<i>Ownership.Management</i>	-1.503 (1.728)	0.681 (0.602)	-1.115 (2.157)	-0.289 (0.201)
<i>SSR</i>	0.0155 (0.017)	-0.00926 (0.006)	0.0176 (0.019)	0.000689 (0.002)
<i>Size</i>	0.854*** (0.041)	0.0513*** (0.013)	0.263*** (0.061)	-0.0144*** (0.005)
<i>Leverage</i>	-0.573*** (0.104)	-0.146*** (0.043)	-0.351*** (0.129)	0.134*** (0.015)
<i>Age</i>	-0.00802** (0.003)	-0.00418*** (0.001)	-0.00378 (0.004)	0.00164*** (0.000)
<i>Crisis</i>	0.0506*** (0.011)	0.0135*** (0.003)	0.0663*** (0.012)	-0.00314*** (0.001)
<i>Constant</i>	0.0252 (0.361)	-0.379*** (0.117)	2.226*** (0.536)	0.191*** (0.047)
Observations	9,407	11,535	9,290	11,546
Number of Firms	1,229	1,265	1,217	1,266
R-squared	0.264	0.019	0.032	0.065

Table 4.13 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Firm Performance from 2003 to 2005

This table employs equation 4.c (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage.

The sample is yearly from 2003 to 2005.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Types X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.Government X Ultimate Controlling Ownership</i>	-0.000339 (0.001)	-0.000987 (0.001)	-0.000204 (0.000)	0.0169 (0.012)	0.000618 (0.001)	-0.00164 (0.003)	-0.00047 (0.001)
<i>Dummy.Department X Ultimate Controlling Ownership</i>	-0.000775 (0.001)	-0.00102 (0.001)	-0.000164 (0.000)	0.0154 (0.013)	0.000218 (0.001)	-0.00225 (0.003)	-0.000164 (0.001)
<i>Dummy.AssetBureau X Ultimate Controlling Ownership</i>	-0.000734 (0.001)	-0.000862 (0.001)	-0.000201 (0.000)	0.0187 (0.013)	1.77E-05 (0.002)	-0.00323 (0.003)	-0.00127 (0.001)
<i>Dummy.SASAC X Ultimate Controlling Ownership</i>	-0.000394 (0.001)	-0.000847 (0.001)	-0.00027 (0.000)	0.0129 (0.012)	0.000435 (0.001)	-0.00265 (0.002)	-0.000672 (0.001)
<i>Dummy.SOE X Ultimate Controlling Ownership</i>	-0.000648 (0.001)	-0.000871 (0.001)	-0.000358 (0.000)	0.0169 (0.013)	0.00019 (0.001)	-0.00336 (0.003)	-0.000841 (0.001)
<i>Dummy.PublicInstitution X Ultimate Controlling Ownership</i>	-0.00117 (0.001)	-0.000629 (0.001)	-0.000450* (0.000)	0.00238 (0.016)	-0.00054 (0.001)	-0.00387 (0.003)	-0.0009 (0.001)
Control Variables							
<i>Ownership.Director</i>	-4.580* (2.781)	2.624 (2.361)	1.982** (0.770)	-2.451 (16.390)	-7.154 (4.414)	14.57 (9.824)	6.592*** (2.207)
<i>Ownership.Supervisor</i>	-5.395* (2.870)	0.0816 (2.583)	1.038 (0.821)	0.0115 (17.200)	-5.421 (4.582)	13.86 (9.384)	0.861 (2.423)
<i>Ownership.Executive</i>	0.544 (0.460)	0.166 (1.323)	0.942*** (0.305)	10.47*** (1.722)	0.367 (0.993)	-0.102 (1.966)	4.376*** (1.417)
<i>Ownership.Management</i>	4.699 (2.879)	-1.561 (2.254)	-1.930** (0.781)	-1.527 (15.980)	6.218 (4.417)	-11.3 (9.410)	-5.677** (2.255)
<i>Size</i>	0.923*** (0.076)	0.518*** (0.076)	0.0877*** (0.024)	-1.348 (1.339)	0.396*** (0.096)	1.726*** (0.186)	0.293*** (0.091)
<i>Leverage</i>	-0.321*** (0.090)	-0.265** (0.134)	-0.105*** (0.032)	2.611** (1.126)	-0.04 (0.138)	0.0805 (0.289)	-0.224** (0.105)
<i>Age</i>	0.0290*** (0.005)	-0.0069 (0.005)	-0.0102*** (0.002)	-0.330*** (0.090)	0.0359*** (0.006)	-0.0638*** (0.014)	-0.0332*** (0.008)
Constant	0.191 (0.680)	-1.439** (0.680)	-0.664*** (0.213)	17.52 (11.740)	1.708** (0.855)	-7.413*** (1.679)	-2.292*** (0.768)
Observations	2,521	2,514	2,500	2,519	2,505	2,505	2,486
Number of Firms	953	955	954	956	950	953	951
R-squared	0.408	0.1	0.062	0.069	0.134	0.129	0.054

Table 4.14 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Firm Performance from 2006 to 2009

This table employs equation 4.c (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2006 to 2009.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Independent Variables: State Ultimate Controllers Types X Ultimate Controlling Ownership							
<i>Dummy.Government X Ultimate Controlling Ownership</i>	0.00336** (0.001)	-0.00136 (0.003)	0.000938** (0.000)	0.00833 (0.023)	0.00531** (0.003)	0.00331 (0.003)	0.00225* (0.001)
<i>Dummy.Department X Ultimate Controlling Ownership</i>	0.00304** (0.001)	-0.000148 (0.002)	0.000880** (0.000)	0.047 (0.030)	0.00334* (0.002)	0.000692 (0.003)	0.00269*** (0.001)
<i>Dummy.AssetBureau X Ultimate Controlling Ownership</i>	0.0017 (0.001)	-0.00166 (0.002)	0.000982*** (0.000)	0.0774** (0.032)	0.00353* (0.002)	-0.00405 (0.004)	0.00264** (0.001)
<i>Dummy.SASAC X Ultimate Controlling Ownership</i>	0.00335*** (0.001)	-0.000194 (0.002)	0.000770*** (0.000)	0.0425* (0.024)	0.00349* (0.002)	0.000186 (0.003)	0.00224** (0.001)
<i>Dummy.SOE X Ultimate Controlling Ownership</i>	0.00252** (0.001)	-0.00113 (0.002)	0.000585* (0.000)	0.0420* (0.025)	0.00375** (0.002)	0.000675 (0.003)	0.00182* (0.001)
<i>Dummy.PublicInstitution X Ultimate Controlling Ownership</i>	0.00113 (0.002)	-0.00748*** (0.003)	0.0013 (0.001)	0.0438 (0.034)	0.00877*** (0.003)	-0.00106 (0.006)	0.00398* (0.002)
Control Variables							
<i>Ownership.Director</i>	2.978 (3.513)	0.188 (1.547)	0.89 (0.542)	55.76 (77.730)	2.687 (2.868)	5.621 (3.978)	1.673 (1.177)
<i>Ownership.Supervisor</i>	0.25 (6.257)	5.390*** (1.894)	0.625 (0.691)	-191.2*** (59.000)	-5.118 (5.494)	-6.94 (7.472)	-1.702 (1.127)
<i>Ownership.Executive</i>	3.782 (2.986)	0.414 (0.560)	0.318 (0.345)	17.14 (35.970)	3.467 (2.975)	3.613 (2.769)	0.288 (0.479)
<i>Ownership.Management</i>	-0.873 (4.085)	-2.375* (1.300)	-0.251 (0.437)	9.252 (42.020)	1.46 (3.452)	0.328 (4.198)	-0.286 (0.887)
<i>Size</i>	0.739*** (0.039)	0.455*** (0.054)	0.0269*** (0.010)	-0.678 (0.729)	0.289*** (0.055)	1.188*** (0.100)	0.177*** (0.044)
<i>Leverage</i>	-0.251*** (0.073)	-0.134 (0.093)	-0.0927*** (0.020)	2.848* (1.693)	-0.103 (0.124)	0.637** (0.247)	-0.296*** (0.083)
<i>Age</i>	-0.00253 (0.004)	-0.0101** (0.005)	-0.00835*** (0.001)	-0.582*** (0.115)	0.0063 (0.005)	-0.0508*** (0.012)	-0.0259*** (0.005)
<i>Crisis</i>	0.0426*** (0.00774)	0.0138 (-0.00889)	0.0116*** (-0.00267)	3.304*** (-0.209)	0.0322*** (-0.0103)	0.0580** (-0.024)	0.0155** (-0.00766)
Constant	2.116*** (0.349)	-0.833 (0.507)	-0.146* (0.086)	13.92** (6.245)	2.900*** (0.517)	-2.735*** (0.886)	-1.366*** (0.365)
Observations	3,109	3,104	3,104	3,094	3,080	3,097	3,094
Number of Firms	964	967	975	972	961	966	971
R-squared	0.51	0.165	0.047	0.111	0.128	0.188	0.057

Table 4.15 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and State Ultimate Controllers on Firm Performance from 2010 to 2016

This table employs equation 4.c (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and state ultimate controllers on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and six dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2010 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
Independent Variables: State Ultimate Controllers Types X Ultimate Controlling Ownership							
<i>Dummy.Government X Ultimate Controlling Ownership</i>	0.000646 (0.001)	-0.00169 (0.001)	0.000429* (0.000)	-0.0113 (0.018)	0.00245** (0.001)	0.000241 (0.002)	0.000764 (0.001)
<i>Dummy.Department X Ultimate Controlling Ownership</i>	-9.34E-07 (0.001)	-0.00146 (0.001)	0.000830*** (0.000)	-0.0151 (0.023)	0.00185 (0.001)	-0.000932 (0.002)	0.00189** (0.001)
<i>Dummy.AssetBureau X Ultimate Controlling Ownership</i>	0.000868 (0.001)	-0.00165 (0.002)	0.000454** (0.000)	-0.0151 (0.017)	0.00272 (0.002)	-0.00037 (0.003)	0.00134* (0.001)
<i>Dummy.SASAC X Ultimate Controlling Ownership</i>	0.000439 (0.001)	-0.00126 (0.001)	0.000583*** (0.000)	-0.0167 (0.015)	0.00172* (0.001)	-0.000653 (0.001)	0.00171*** (0.001)
<i>Dummy.SOE X Ultimate Controlling Ownership</i>	-1.59E-05 (0.001)	-0.00128 (0.001)	0.000634*** (0.000)	-0.0122 (0.017)	0.0014 (0.001)	0.000949 (0.002)	0.00174** (0.001)
<i>Dummy.PublicInstitution X Ultimate Controlling Ownership</i>	-0.00155 (0.001)	-0.00296 (0.002)	0.000841*** (0.000)	-0.0398* (0.024)	0.00177 (0.002)	-0.00216 (0.002)	0.00226*** (0.001)
Control Variables							
<i>Ownership.Director</i>	0.946 (1.311)	-1.08 (1.763)	0.141 (0.320)	49.48*** (19.080)	1.604 (1.950)	3.125 (2.923)	-0.471 (0.831)
<i>Ownership.Supervisor</i>	-0.369 (1.375)	-2.612 (2.539)	0.0351 (0.473)	35.66 (29.940)	1.68 (2.349)	-4.586 (4.547)	-1.362 (1.130)
<i>Ownership.Executive</i>	0.0115 (0.753)	-0.798 (0.592)	0.0492 (0.145)	3.275 (7.957)	0.797 (0.965)	0.191 (2.017)	-0.348 (0.549)
<i>Ownership.Management</i>	-1.017 (1.229)	1.294 (1.838)	0.104 (0.331)	-54.34*** (19.400)	-1.88 (1.882)	-1.812 (2.940)	1.103 (0.890)
<i>Size</i>	0.792*** (0.036)	0.586*** (0.053)	0.0272*** (0.007)	-3.558*** (0.992)	0.225*** (0.047)	1.234*** (0.075)	0.155*** (0.025)
<i>Leverage</i>	-0.332*** (0.053)	-0.171*** (0.066)	-0.0944*** (0.015)	6.147*** (1.398)	-0.171*** (0.066)	0.158 (0.117)	-0.297*** (0.055)
<i>Age</i>	-0.0161*** (0.003)	-0.00938*** (0.003)	-0.00560*** (0.001)	0.533*** (0.065)	-0.00756** (0.003)	-0.0734*** (0.005)	-0.0177*** (0.002)
<i>Crisis</i>	-0.0477*** (0.00575)	-0.0346*** (0.00664)	0.00663*** (0.00169)	2.459*** (0.127)	-0.0146* (0.00794)	-0.0686*** (0.0165)	0.0129*** (0.00493)
Constant	2.050*** (0.316)	-2.020*** (0.483)	-0.154** (0.064)	29.51*** (8.723)	3.899*** (0.435)	-2.573*** (0.664)	-1.192*** (0.212)
Observations	5,787	5,856	5,950	5,857	5,739	5,835	5,929
Number of Firms	1,062	1,062	1,080	1,075	1,055	1,063	1,075
R-squared	0.527	0.271	0.1	0.103	0.039	0.218	0.084

Table 4.16 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and Three Administrative Levels on Firm Performance from 2003 to 2005

This table employs equation 4.d (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage.

The sample is yearly from 2003 to 2005.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controlling Ownership Levels X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.CentralLevel X Ultimate Controlling Ownership</i>	-3.53E-05 (0.00025)	0.000202 (0.00035)	0.000154* (0.00008)	-0.00548** (0.00262)	-0.000217 (0.00045)	0.000338 (0.00067)	6.58E-05 (0.00026)
<i>Dummy.ProvincialLevel X Ultimate Controlling Ownership</i>	0.000538** (0.00024)	-0.000238 (0.00025)	0.000155** (0.00007)	-0.00103 (0.00242)	0.000787** (0.00033)	0.00165** (0.00073)	0.000372* (0.00021)
<i>Dummy.MunicipalLevel X Ultimate Controlling Ownership</i>	-9.68E-05 (0.00027)	-4.36E-05 (0.00026)	-1.02E-05 (0.00008)	0.000685 (0.00331)	-7.23E-05 (0.00043)	-0.000128 (0.00075)	2.38E-05 (0.00032)
Control Variables							
<i>Ownership.Director</i>	-4.768* (2.84000)	2.67 (2.42900)	1.974*** (0.74400)	-2.207 (17.74000)	-7.393 (4.52200)	14.36 (9.88900)	6.557*** (2.20300)
<i>Ownership.Supervisor</i>	-5.658* (2.93100)	0.0674 (2.64100)	0.997 (0.79300)	0.693 (18.61000)	-5.676 (4.68600)	13.4 (9.45300)	0.775 (2.41800)
<i>Ownership.Executive</i>	0.584 (0.48000)	0.223 (1.30400)	0.959*** (0.30400)	9.799*** (1.79700)	0.354 (0.94800)	0.00168 (2.00800)	4.405*** (1.43000)
<i>Ownership.Management</i>	4.908* (2.92900)	-1.608 (2.32300)	-1.917** (0.75700)	-1.736 (17.32000)	6.479 (4.51900)	-11.01 (9.47200)	-5.630** (2.25200)
<i>Size</i>	0.925*** (0.07410)	0.521*** (0.07690)	0.0884*** (0.02420)	-1.406 (1.33900)	0.395*** (0.09540)	1.738*** (0.18300)	0.298*** (0.09160)
<i>Leverage</i>	-0.320*** (0.08980)	-0.263** (0.13400)	-0.104*** (0.03240)	2.547** (1.12100)	-0.0399 (0.13800)	0.0902 (0.29200)	-0.222** (0.10600)
<i>Age</i>	0.0309*** (0.00485)	-0.00542 (0.00458)	-0.0102*** (0.00186)	-0.367*** (0.08430)	0.0366*** (0.00617)	-0.0613*** (0.01380)	-0.0322*** (0.00737)
Constant	0.119 (0.65700)	-1.519** (0.69600)	-0.687*** (0.20900)	19.15 (11.73000)	1.718** (0.85200)	-7.706*** (1.61300)	-2.384*** (0.78300)
Observations	2,521	2,514	2,500	2,519	2,505	2,505	2,486
Number of Firms	953	955	954	956	950	953	951
R-squared	0.409	0.1	0.062	0.066	0.137	0.129	0.052

Table 4.17 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and Three Administrative Levels on Firm Performance from 2006 to 2009

This table employs equation 4.d (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis. The sample is yearly from 2006 to 2009.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controlling Ownership Levels X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.CentralLevel X Ultimate Controlling Ownership</i>	0.000733* (0.00040)	0.000952 (0.00065)	0.000366*** (0.00013)	0.00869 (0.01230)	-0.000394 (0.00069)	-0.000674 (0.00107)	0.000651** (0.00028)
<i>Dummy.ProvincialLevel X Ultimate Controlling Ownership</i>	0.00221*** (0.00064)	0.000197 (0.00100)	0.000437** (0.00019)	0.00313 (0.01910)	0.00185* (0.00106)	-0.000442 (0.00169)	0.00117* (0.00062)
<i>Dummy.MunicipalLevel X Ultimate Controlling Ownership</i>	0.000503 (0.00063)	0.000961 (0.00093)	7.74E-05 (0.00026)	0.0214 (0.02520)	-0.000206 (0.00088)	0.000325 (0.00190)	0.000601 (0.00068)
Control Variables							
<i>Ownership.Director</i>	2.453 (3.48300)	0.0858 (1.65700)	0.831 (0.59400)	61.29 (77.19000)	2.306 (2.74900)	4.996 (4.02600)	1.486 (1.30300)
<i>Ownership.Supervisor</i>	0.786 (6.12600)	4.577** (1.84200)	0.825 (0.69900)	-183.6*** (58.23000)	-3.763 (5.40800)	-6.89 (7.14400)	-0.993 (1.24100)
<i>Ownership.Executive</i>	3.752 (2.97000)	0.405 (0.55900)	0.296 (0.33500)	16.83 (36.06000)	3.454 (2.95900)	3.553 (2.79000)	0.214 (0.45300)
<i>Ownership.Management</i>	-0.687 (3.98600)	-2.149 (1.37000)	-0.282 (0.44700)	3.915 (41.41000)	1.399 (3.34000)	0.887 (4.11500)	-0.384 (0.98800)
<i>Size</i>	0.758*** (0.04120)	0.448*** (0.06110)	0.0317*** (0.01020)	-0.448 (0.71300)	0.317*** (0.06240)	1.194*** (0.10200)	0.189*** (0.04490)
<i>Leverage</i>	-0.240*** (0.07390)	-0.144 (0.09080)	-0.0896*** (0.01970)	3.036* (1.72100)	-0.0832 (0.12200)	0.624** (0.24600)	-0.286*** (0.08420)
<i>Age</i>	-0.00467 (0.00419)	-0.00985** (0.00494)	-0.00879*** (0.00143)	-0.580*** (0.10400)	0.00407 (0.00543)	-0.0530*** (0.01160)	-0.0269*** (0.00537)
<i>Crisis</i>	0.0418*** (0.00758)	0.0155* (0.00883)	0.0111*** (0.00265)	3.238*** (0.20700)	0.0297*** (0.01030)	0.0613*** (0.02390)	0.0141* (0.00769)
Constant	2.041*** (0.36100)	-0.81 (0.54700)	-0.165* (0.08710)	13.08** (6.24000)	2.799*** (0.56000)	-2.746*** (0.89700)	-1.400*** (0.37200)
Observations	3,109	3,104	3,104	3,094	3,080	3,097	3,094
Number of Firms	964	967	975	972	961	966	971
R-squared	0.508	0.16	0.045	0.106	0.123	0.184	0.054

Table 4.18 Regression Results of the Effects of Interaction between Ultimate Controlling Ownership and Three Administrative Levels on Firm Performance from 2010 to 2016

This table employs equation 4.d (See the detailed interpretation of variables in the methodology, section 4.3) and presents the regression results about the interaction effect of ultimate controlling ownership and three administrative levels on firm performance. The firm performance measures include firm output (operating revenue) in column 2, employment (employees) in column 3, profitability (ROA and Tobin's Q) in columns 4 and 5, labour productivity (operating revenue per employee) in column 6, investment (capital expenditure) in column 7 and operating efficiency (ROS) in column 8. The table shows the coefficients of interaction between ultimate controlling ownership and three dummy variables with standard error in parentheses. The control variables comprise managerial ownership, firm size, firm age, leverage and financial crisis.

The sample is yearly from 2010 to 2016.

*Significance at 10% level. **Significance at 5% level. ***Significance at 1% level.

Independent Variables: State Ultimate Controllers Administrative Levels X Ultimate Controlling Ownership	Dependent Variables: Firm Performance Measures						
	Operating Revenue	Employee	ROA	Tobin's Q	Operating Revenue per Employee	Capital Expenditure	ROS
<i>Dummy.CentralLevel X Ultimate Controlling Ownership</i>	0.000147 (0.00035)	-0.000936* (0.00050)	0.000360*** (0.00012)	-0.000611 (0.00766)	0.000993** (0.00048)	-0.000184 (0.00091)	0.000800** (0.00038)
<i>Dummy.ProvincialLevel X Ultimate Controlling Ownership</i>	0.000305 (0.00051)	-0.000162 (0.00071)	0.000113 (0.00015)	-0.0104 (0.01100)	0.000516 (0.00061)	-0.00117 (0.00123)	0.00046 (0.00057)
<i>Dummy.MunicipalLevel X Ultimate Controlling Ownership</i>	0.00207*** (0.00055)	0.000785 (0.00075)	-0.000172 (0.00020)	-0.018 (0.01700)	0.00129 (0.00082)	-0.00401** (0.00162)	4.40E-05 (0.00046)
Control Variables							
<i>Ownership.Director</i>	0.958 (1.30800)	-1.04 (1.77800)	0.134 (0.31700)	49.88*** (18.97000)	1.586 (1.96000)	3.104 (2.93400)	-0.502 (0.82000)
<i>Ownership.Supervisor</i>	-0.352 (1.37500)	-2.538 (2.55400)	0.0473 (0.46700)	35.8 (29.96000)	1.614 (2.35800)	-4.34 (4.60500)	-1.344 (1.11100)
<i>Ownership.Executive</i>	0.00644 (0.75000)	-0.821 (0.60300)	0.0574 (0.14400)	3.083 (8.03600)	0.815 (0.97300)	0.189 (2.01000)	-0.323 (0.54600)
<i>Ownership.Management</i>	-1.018 (1.22400)	1.296 (1.85700)	0.0988 (0.32700)	-54.74*** (19.31000)	-1.889 (1.89900)	-1.831 (2.95200)	1.104 (0.88100)
<i>Size</i>	0.794*** (0.03570)	0.580*** (0.05360)	0.0294*** (0.00738)	-3.628*** (0.97900)	0.232*** (0.04820)	1.234*** (0.07410)	0.162*** (0.02490)
<i>Leverage</i>	-0.335*** (0.05330)	-0.178*** (0.06690)	-0.0928*** (0.01560)	6.181*** (1.39200)	-0.169** (0.06580)	0.173 (0.11600)	-0.296*** (0.05640)
<i>Age</i>	-0.0160*** (0.00247)	-0.00864*** (0.00299)	-0.00588*** (0.00061)	0.538*** (0.06350)	-0.00821*** (0.00299)	-0.0738*** (0.00539)	-0.0185*** (0.00221)
<i>Crisis</i>	-0.0470*** (0.00568)	-0.0342*** (0.00677)	0.00629*** (0.00168)	2.465*** (0.12600)	-0.0140* (0.00806)	-0.0720*** (0.01640)	0.0119** (0.00488)
Constant	2.019*** (0.31700)	-2.022*** (0.48500)	-0.151** (0.06440)	29.77*** (8.66100)	3.884*** (0.43700)	-2.530*** (0.66000)	-1.197*** (0.21300)
Observations	5,787	5,856	5,950	5,857	5,739	5,835	5,929
Number of Firms	1,062	1,062	1,080	1,075	1,055	1,063	1,075
R-squared	0.528	0.27	0.097	0.102	0.037	0.218	0.081

Figures of Chapter Four

Figure 4.1 Ultimate Controlling Ownership

This figure shows how the ultimate controlling ownership and direct controlling ownership are calculated. The shareholders in the listed firm are divided into the shareholders related to ultimate controller and the shareholders not related to ultimate controller. The proportion of shares held by the shareholders related to the ultimate controller is a, c and e. The proportion of shares held by the shareholders not related to the ultimate controller is b, d, f. The ultimate controlling ownership is represented by the blue rectangle. It is the sum of the proportion of shares held by the shareholders related to the ultimate controller, namely $a+c+e$. The direct controlling ownership is represented by the orange rectangle. It is the sum of the proportion of shares held by large shareholders, namely $a+b$.

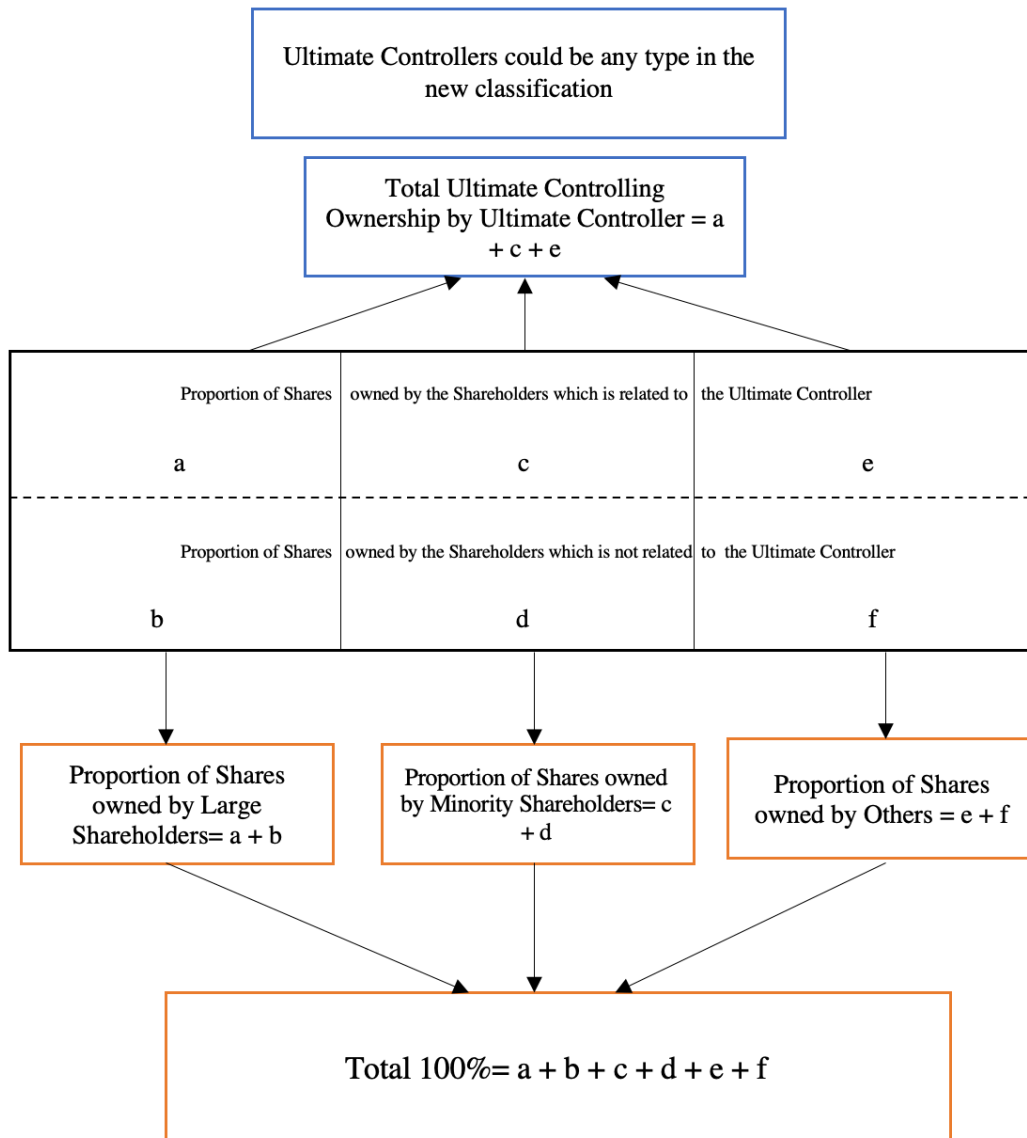


Figure 4.2 Yearly Number of State-controlled Listed Firms with Different Control

Methods over Time

This figure presents the yearly number of state-controlled listed firms with different control methods from 2003 to 2016. The vertical axis shows the number of listed firms; the horizontal axis shows the year with the number of listed firm underneath. Line A represents the yearly number of state-controlled listed firms with control method A; Line B represents the yearly number of state-controlled listed firms with control method B; Line C represents the yearly number of state-controlled listed firms with control method C.

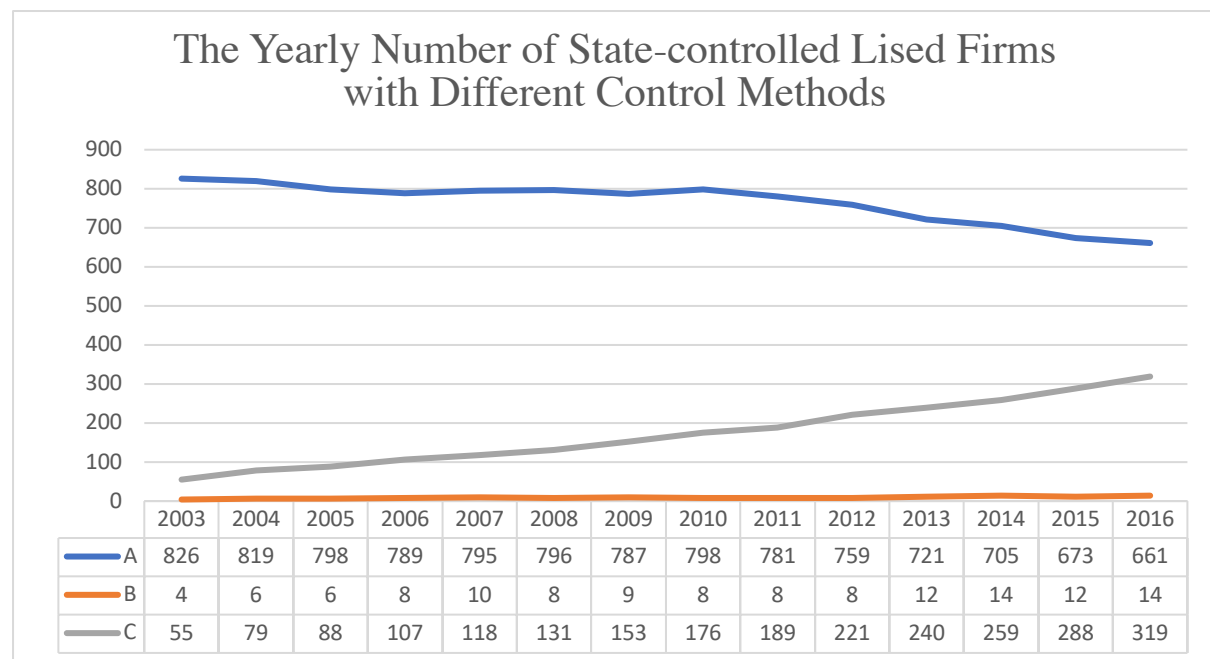


Figure 4.3 Yearly Average Ultimate Controlling Ownership of State-controlled Listed Firms with Different Control Methods over Time

This figure presents the yearly average ultimate controlling ownership of state-controlled listed firms with different control methods. The vertical axis shows the yearly average ultimate controlling ownership; the horizontal axis shows the year with the average ultimate controlling ownership underneath. Line A represents the yearly average ultimate controlling ownership of state-controlled listed firms with control method A; Line B represents the yearly average ultimate controlling ownership of state-controlled listed firms with control method B; Line C represents the yearly average ultimate controlling ownership of state-controlled listed firms with control method C.

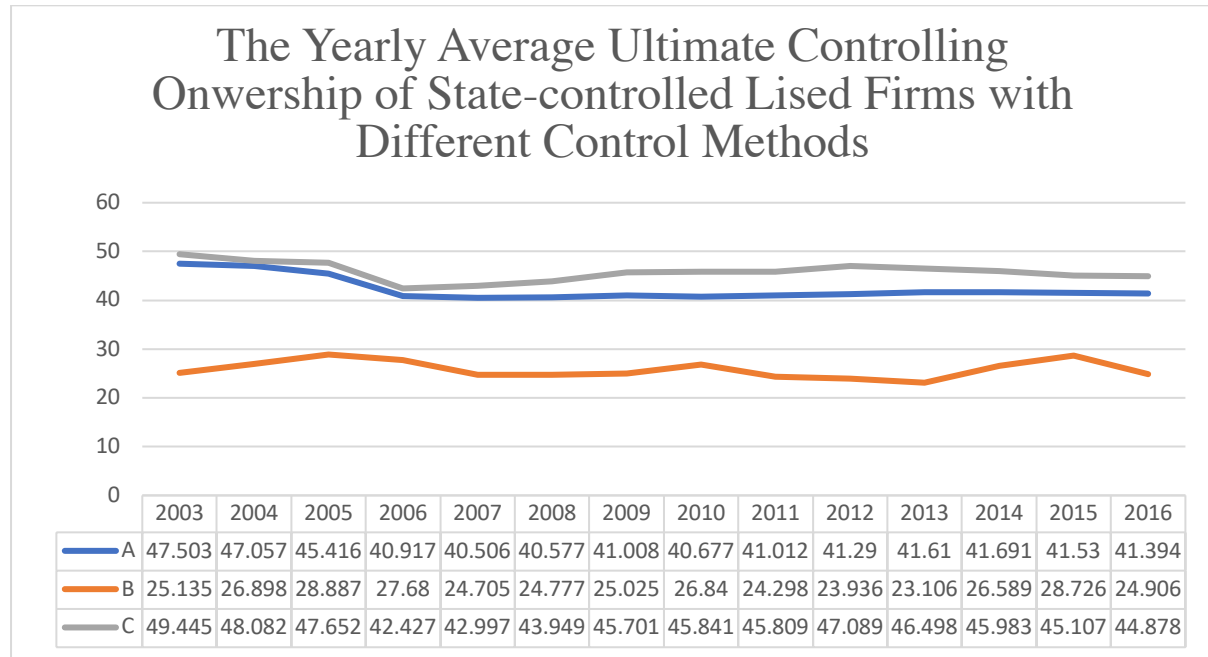


Figure 4.4 Yearly Average Hierarchy of State-controlled Listed Firms with Different Control Methods over Time

This figure presents the yearly average hierarchy of state-controlled listed firms with different control methods. The vertical axis shows the average hierarchy of the state-controlled listed firms; the horizontal axis shows the year with the average hierarchy underneath. Line A represents the yearly average hierarchy of state-controlled listed firms with control method A; Line B represents the yearly average hierarchy of state-controlled listed firms with control method B; Line C represents the yearly average hierarchy of state-controlled listed firms with control method C.

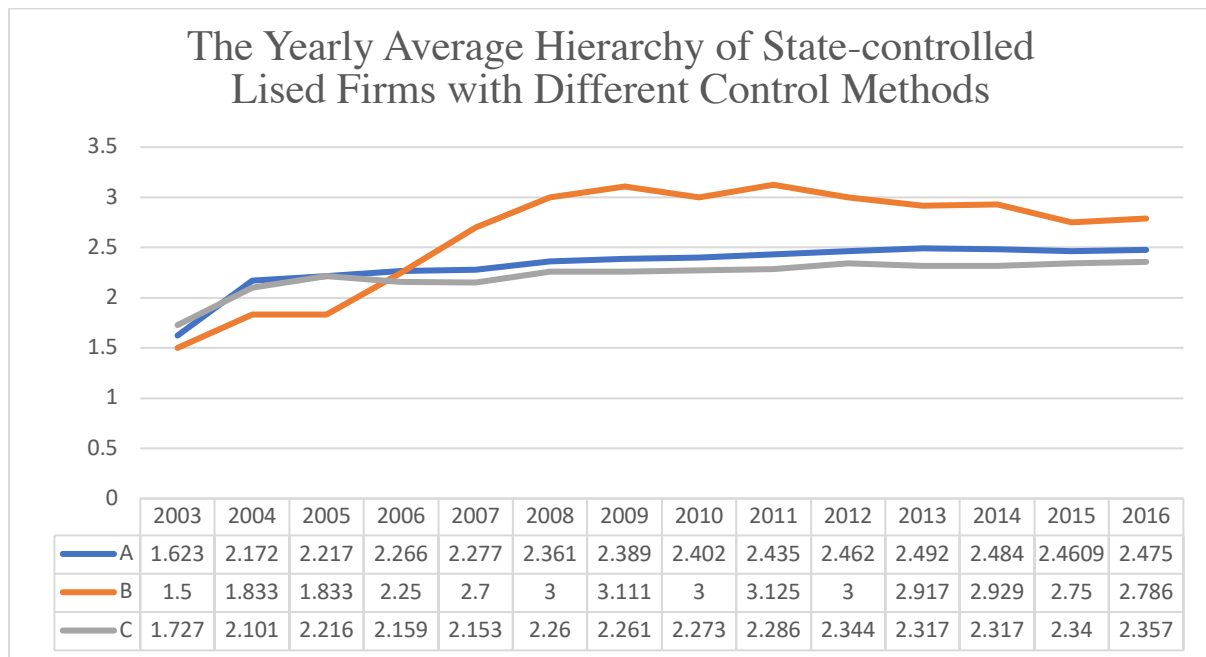
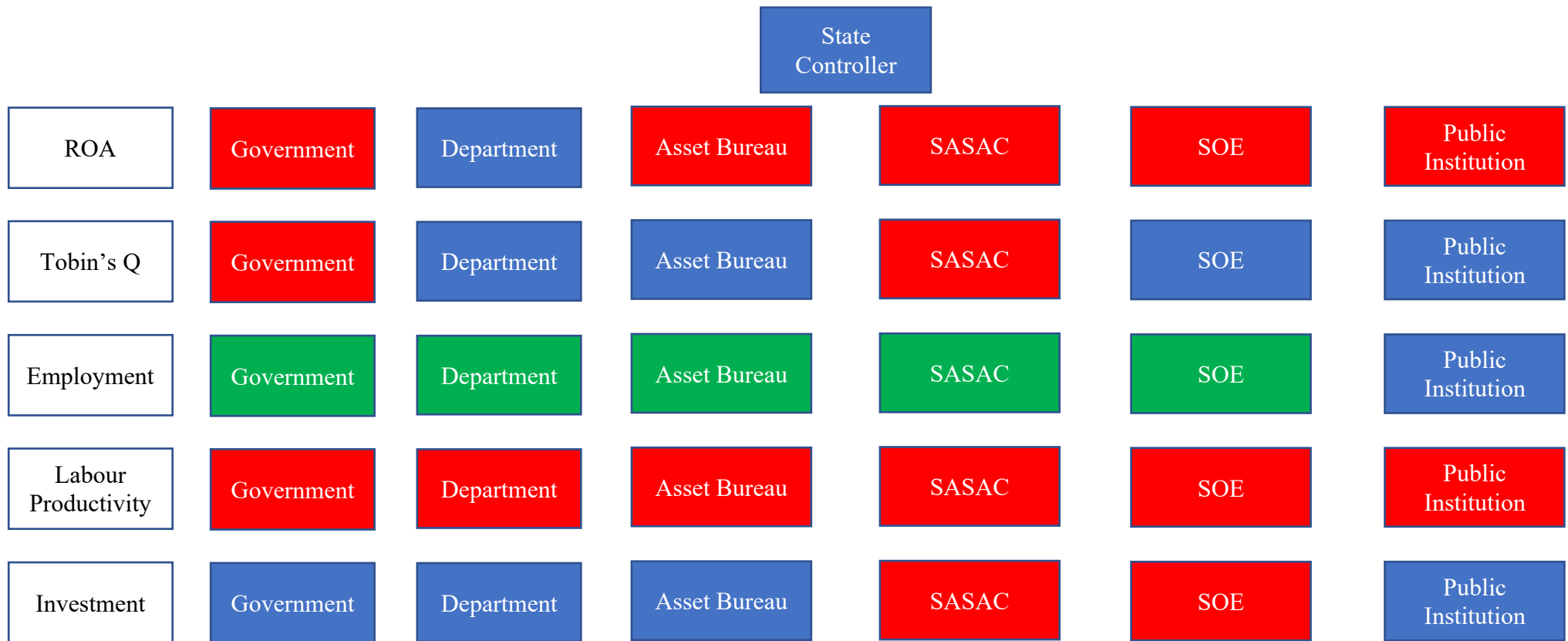


Figure 4.5 The Effects of State Ultimate Controllers on Firm Performance

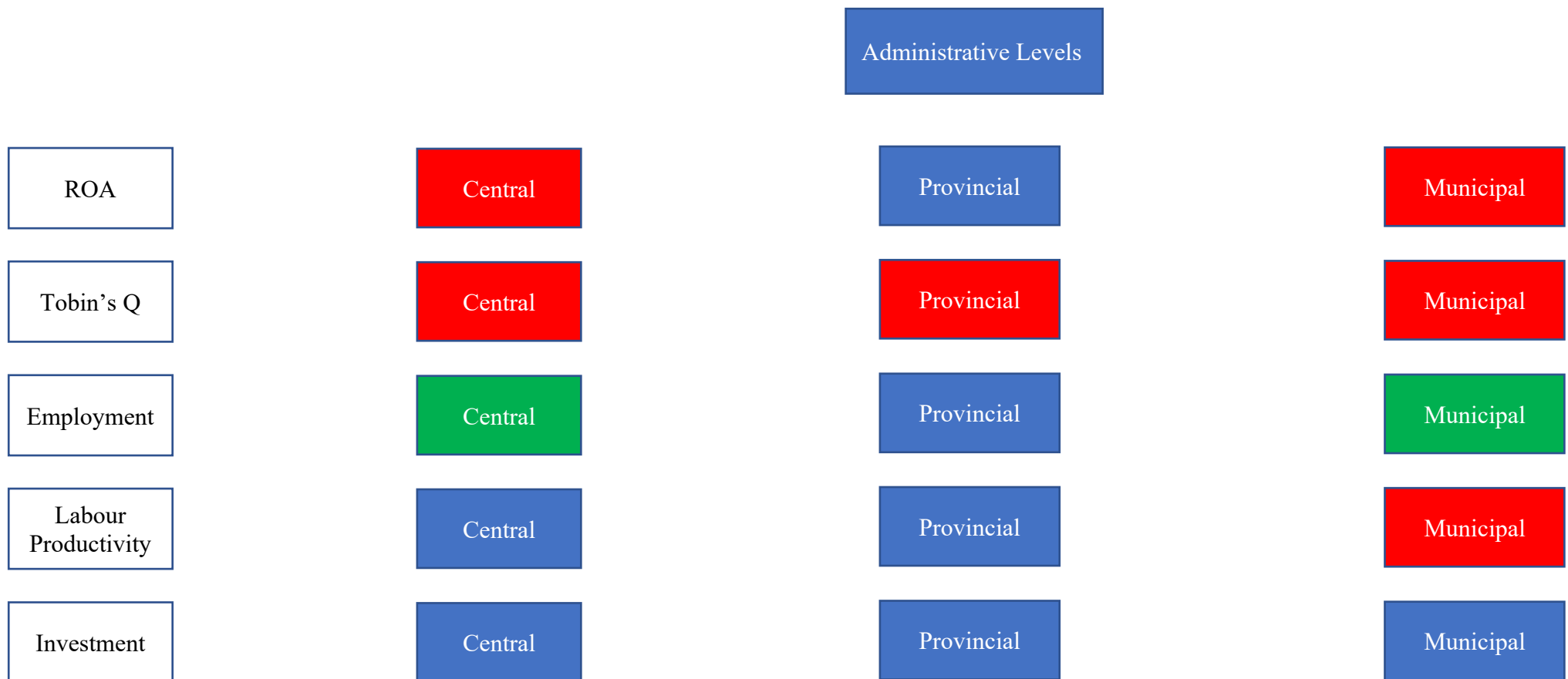
This figure uses the rectangles with different colours to present the effects of state ultimate controllers on firm performance. The white colour rectangles represent the performance measures. Green colour means the type of state controller has a positive effect on firm performance. Red colour means the type of state controller has a negative effect on firm performance. Blue colour means the type of state controller has no effect on firm performance.



Operating Efficiency	Government	Department	Asset Bureau	SASAC	SOE	Public Institution
Firm Output	Government	Department	Asset Bureau	SASAC	SOE	Public Institution

Figure 4.6 The Effects of Administrative Levels on Firm Performance

This figure uses the rectangles with different colours to present the effects of state ultimate controllers at different administrative levels on firm performance. The white colour rectangles represent the performance measures. Green colour means the state controller at the administrative level has a positive effect on firm performance. Red colour means the state controller at the administrative level has a negative effect on firm performance. Blue colour means the state controller at the administrative level has no effect on firm performance.



Operating
Efficiency

Central

Provincial

Municipal

Firm Output

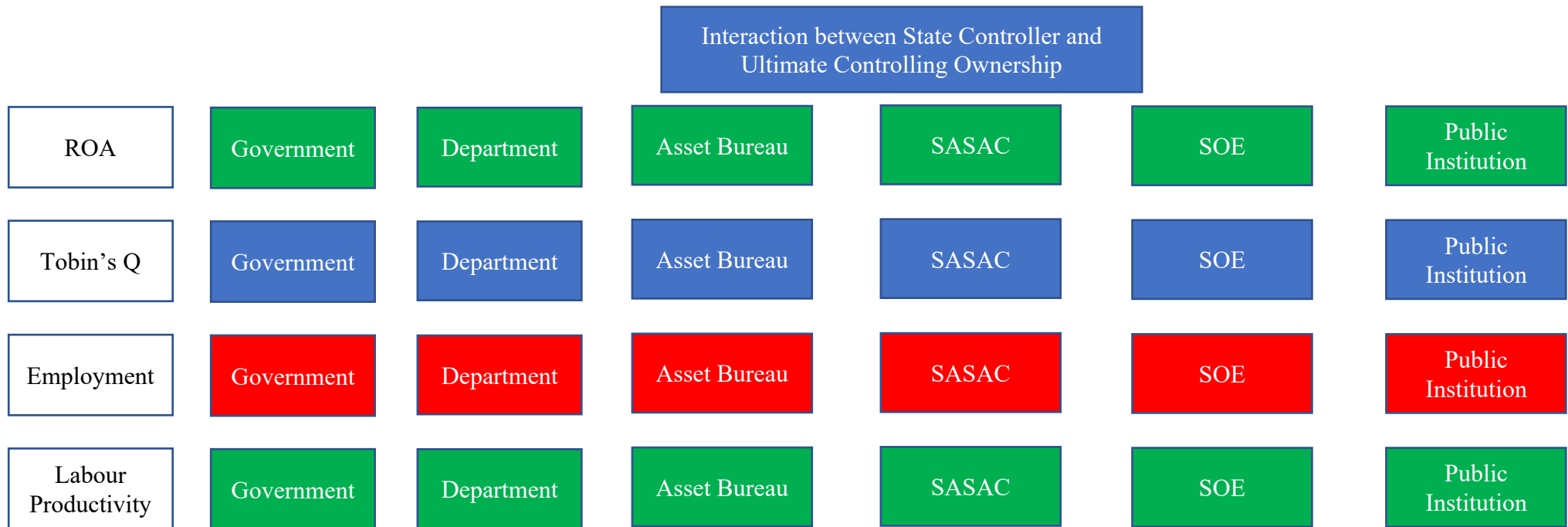
Central

Provincial

Municipal

Figure 4.7 The Effects of the Interactions between State Ultimate Controllers and the Ultimate Controlling Ownership on Firm Performance

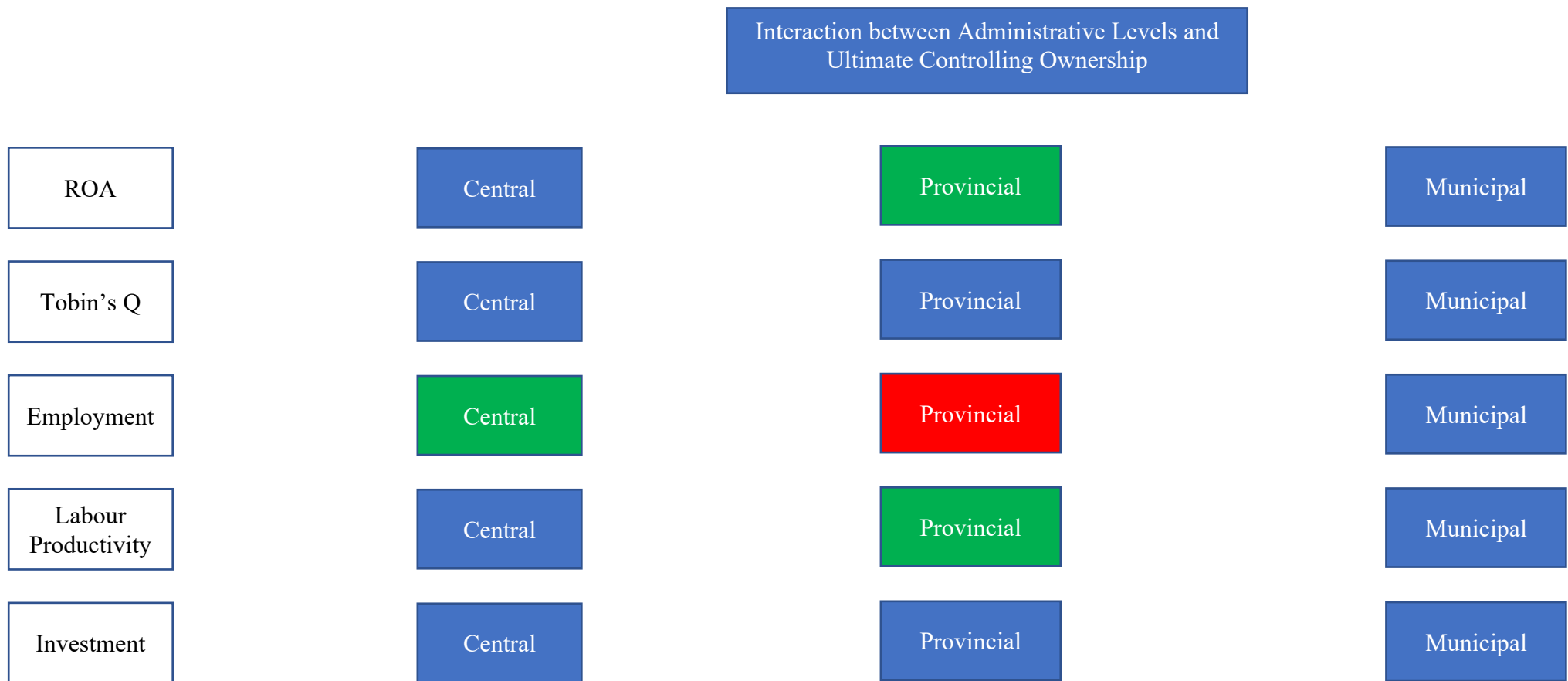
This figure uses the rectangles with different colours to present the effects of the interactions between state ultimate controllers and the ultimate controlling ownership on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the types of state ultimate controllers and the ultimate controlling ownership has a positive effect on firm performance. Red colour means the interactions between the types of state ultimate controllers and the ultimate controlling ownership has a negative effect on firm performance. Blue colour means the interactions between the types of state ultimate controllers and the ultimate controlling ownership has no effect on firm performance.



Investment	Government	Department	Asset Bureau	SASAC	SOE	Public Institution
Operating Efficiency	Government	Department	Asset Bureau	SASAC	SOE	Public Institution
Firm Output	Government	Department	Asset Bureau	SASAC	SOE	Public Institution

Figure 4.8 The Effects of the Interactions between the Administrative Levels and the Ultimate Controlling Ownership on Firm Performance

This figure uses the rectangles with different colours to present the effects of the interactions between the administrative levels and the ultimate controlling ownership on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the administrative levels and the ultimate controlling ownership has a positive effect on firm performance. Red colour means the interactions between the administrative levels and the ultimate controlling ownership has a negative effect on firm performance. Blue colour means the interaction between the administrative levels and the ultimate controlling ownership has no effect on firm performance.



Operating
Efficiency

Central

Provincial

Municipal

Firm Output

Central

Provincial

Municipal

Figure 4.9 The Effects of the Interactions between State Ultimate Controllers and the Firm Hierarchy on Firm Performance

This figure uses the rectangles with different colours to present the effects of the interactions between of state ultimate controllers and the firm hierarchy controllers on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the types of state ultimate controllers and the firm hierarchy controllers has a positive effect on firm performance. Red colour means the interactions between the types of state ultimate controllers and the firm hierarchy controllers has a negative effect on firm performance. Blue colour means the interactions between the types of state ultimate controllers and the firm hierarchy controllers has no effect on firm performance.

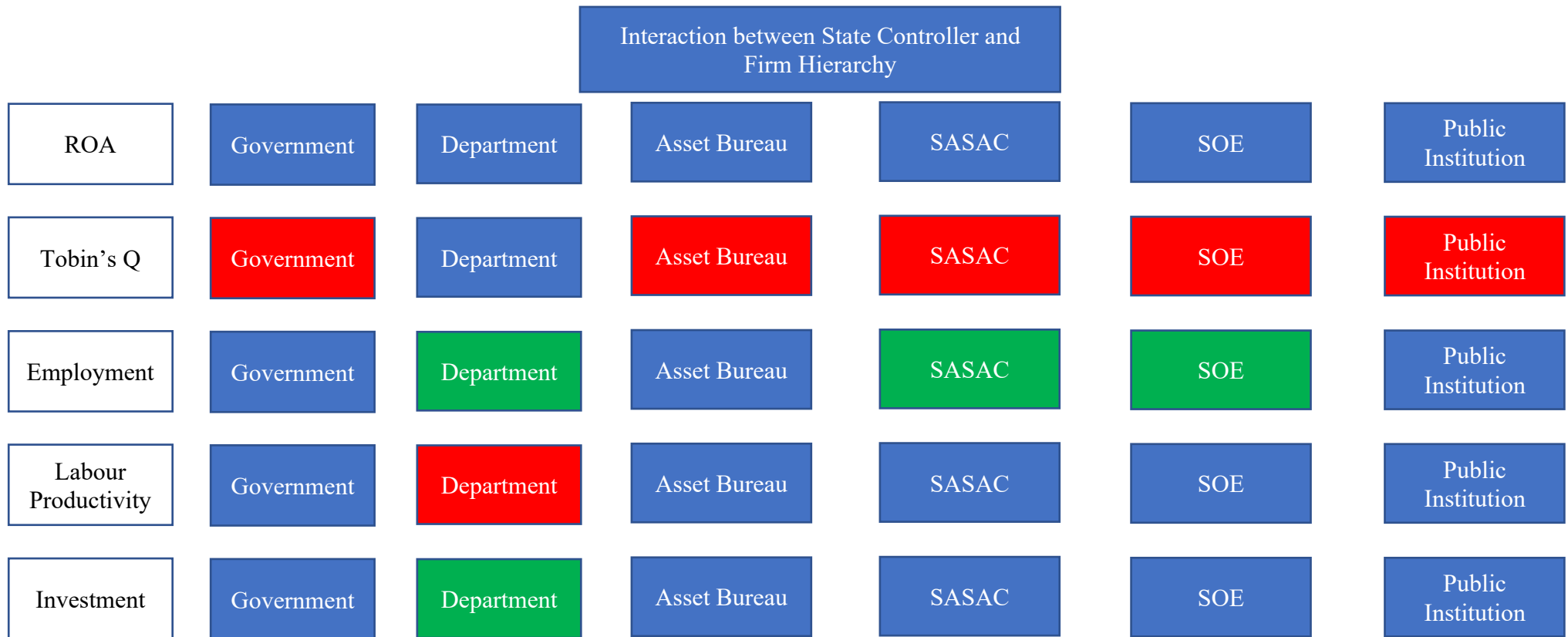
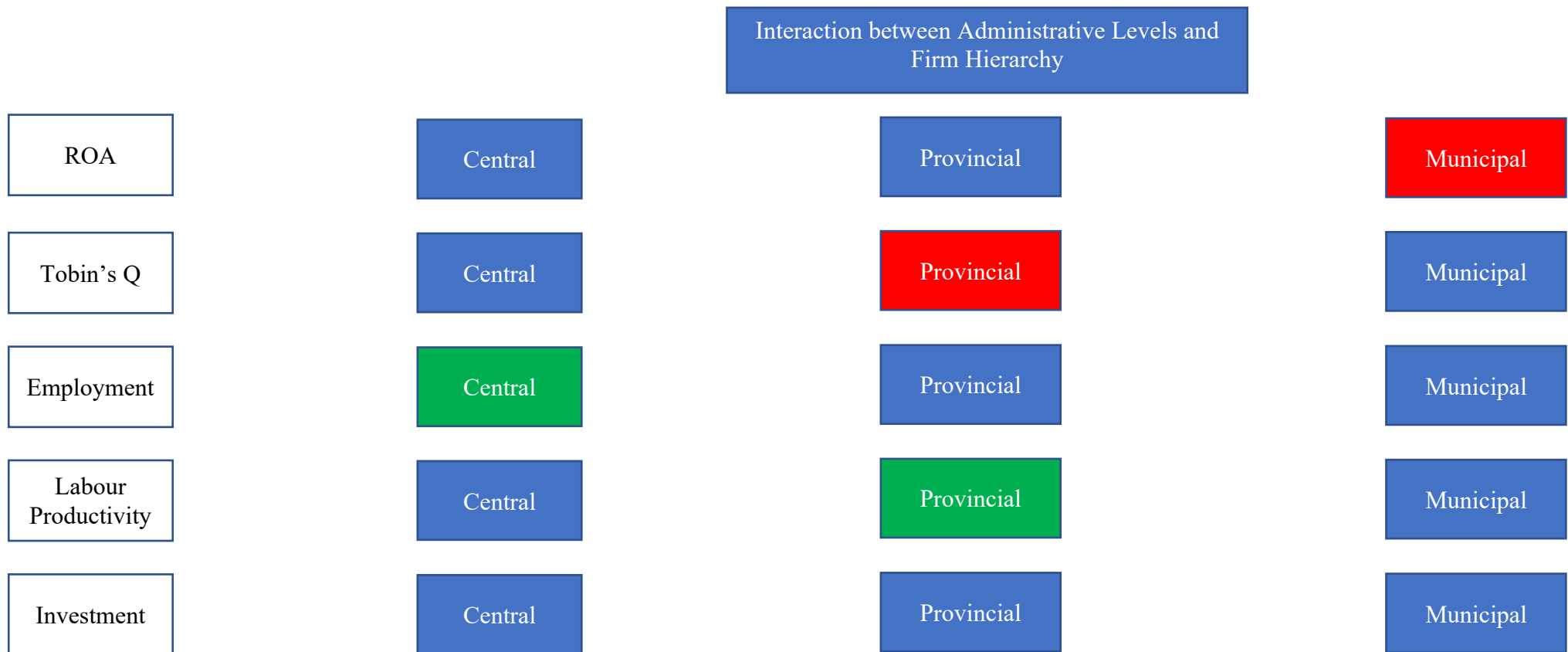




Figure 4.10 The Effects of the interactions between the Administrative Levels and the Firm Hierarchy on Firm Performance

This figure uses the rectangles with different colours to present the effects of the interactions between the administrative levels and the firm hierarchy controllers on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the administrative levels and the firm hierarchy controllers has a positive effect on firm performance. Red colour means the interactions between the administrative levels and the firm hierarchy controllers has a negative effect on firm performance. Blue colour means the interactions between the administrative levels and the firm hierarchy controllers has no effect on firm performance.



Operating
Efficiency

Central

Provincial

Municipal

Firm Output

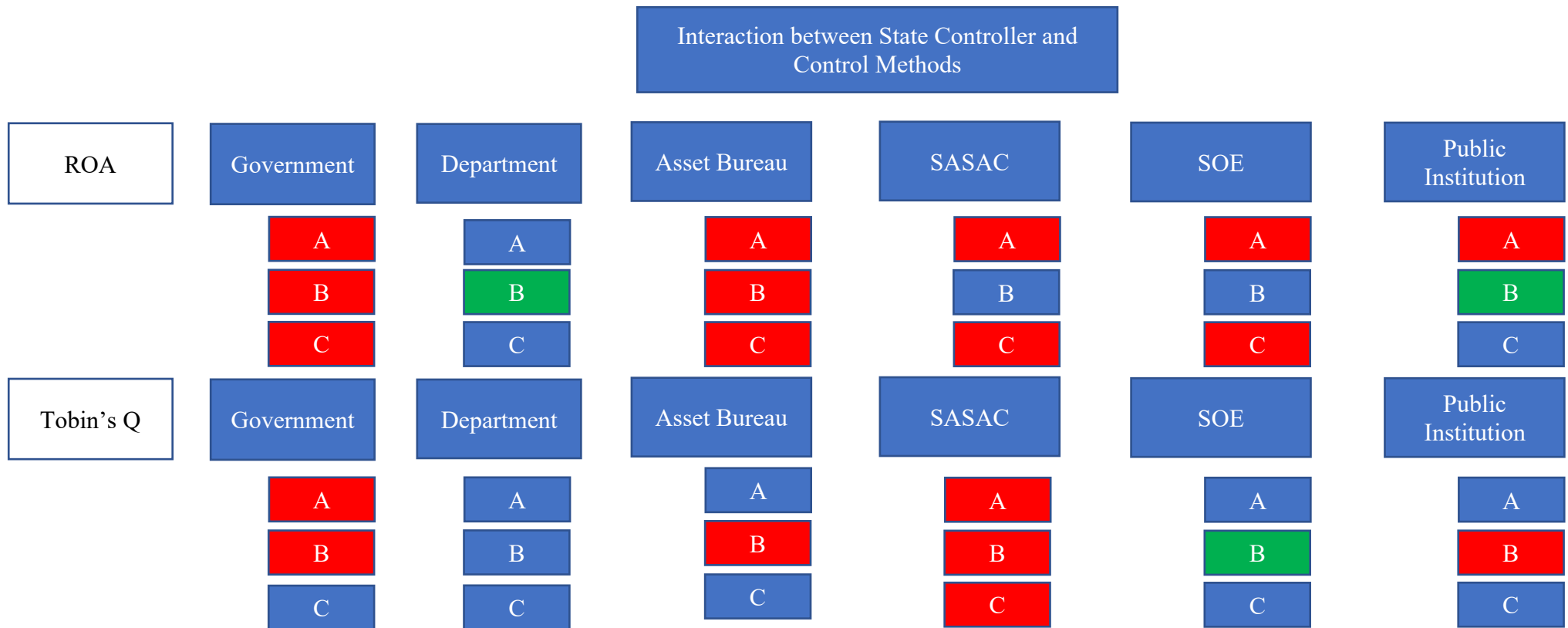
Central

Provincial

Municipal

Figure 4.11 The Effects of the interactions between State Ultimate Controllers and the Control Methods on Firm Performance

This figure uses the rectangles with different colours to present the effects of the interactions between state ultimate controllers and the control methods on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the types of state ultimate controllers and the control methods has a positive effect on firm performance. Red colour means the interactions between the types of state ultimate controllers and the control methods has a negative effect on firm performance. Blue colour means the interactions between the types of state ultimate controllers and the control methods has no effect on firm performance.



	Government	Department	Asset Bureau	SASAC	SOE	Public Institution
Employment	A	A	A	A	A	A
	B	B	B	B	B	B
	C	C	C	C	C	C
Labour Productivity	A	A	A	A	A	A
	B	B	B	B	B	B
	C	C	C	C	C	C
Investment	A	A	A	A	A	A
	B	B	B	B	B	B
	C	C	C	C	C	C

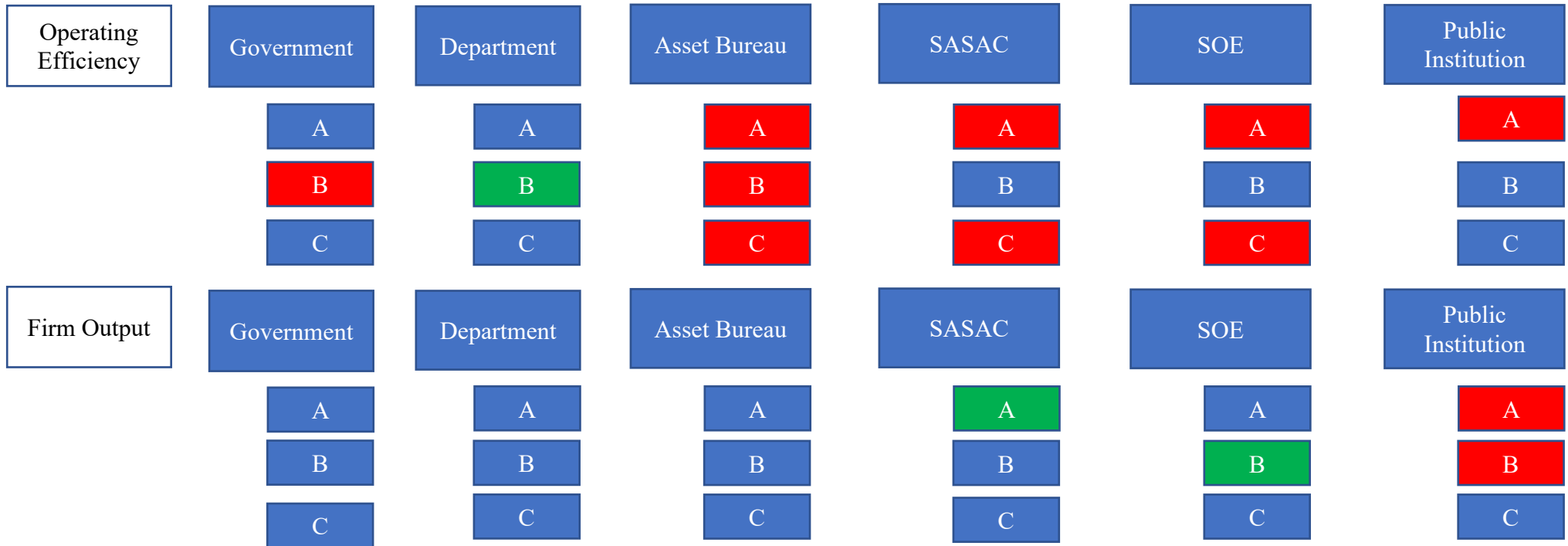
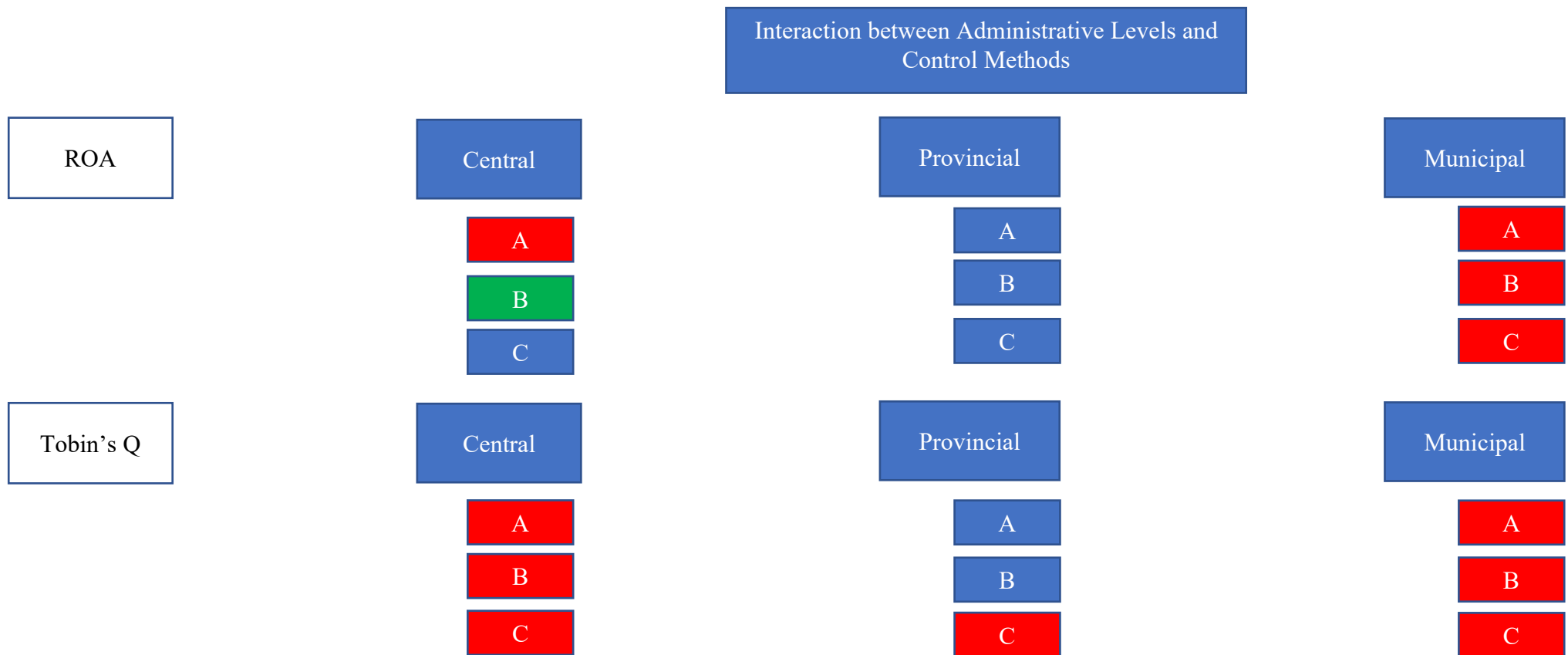
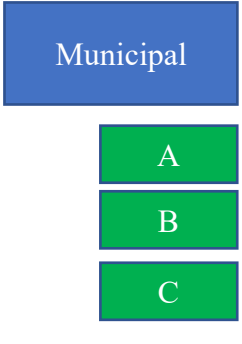
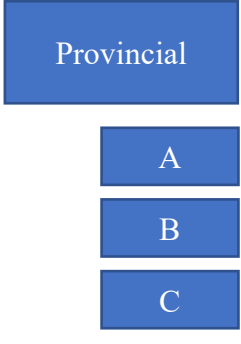
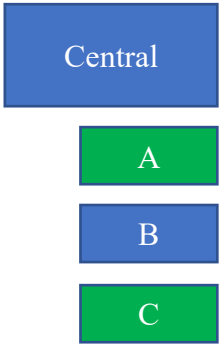


Figure 4.12 The Effects of the interactions between the Administrative Levels and the Control Methods on Firm Performance

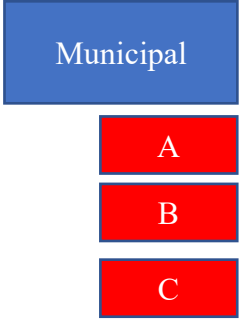
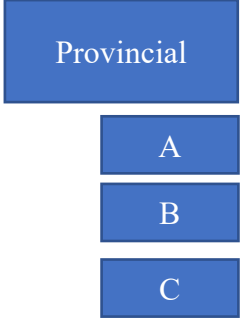
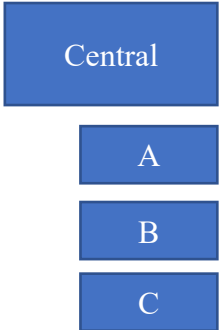
This figure uses the rectangles with different colours to present the effects of the interactions between the administrative levels and the control methods on firm performance. The white colour rectangles represent the performance measures. Green colour means the interactions between the administrative levels and the control methods has a positive effect on firm performance. Red colour means the interactions between the administrative levels and the control methods has a negative effect on firm performance. Blue colour means the interactions between the administrative levels and the control methods has no effect on firm performance.



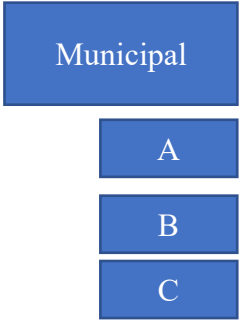
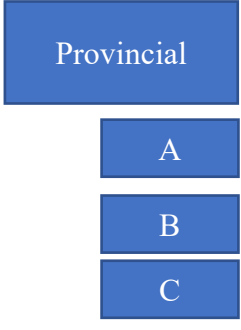
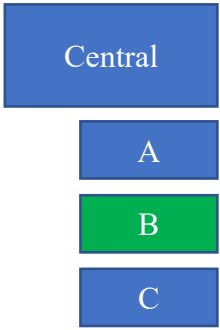
Employment



Labour Productivity



Investment



Operating Efficiency

Central

A

B

C

Provincial

A

B

C

Municipal

A

B

C

Firm Output

Central

A

B

C

Provincial

A

B

C

Municipal

A

B

C

Chapter 5 Conclusion

The thesis investigates the relationship between the ownership structure and listed firms' performance in the Chinese business group. To fill the gap in the literature, I develop a new classification of the ownership in the listed firms of China based on shareholders' administrative levels, functions and objectives. Previous studies (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021) fail to identify the state-controlled listed firms by functions and objectives. Treating state ownership as one cannot show the different effects of various government agencies.

The classification scheme in thesis is developed by following two principles: identifying the ultimate owners and distinguishing their objectives. The Chinese government has assigned different objectives to the various state agencies. For example, the major mission for the large central state-owned enterprises is output. The government provides sufficient supports to promote the large central state-owned enterprises to become pillars in the important industries, allowing the government to totally control the economy. The government also cares about social stability, so it gives the social missions to the Central and Municipal state-owned enterprises, such as absorbing the unemployment or maintaining the supplements' prices. Other state agencies, such as the Central Asset Bureau, can enjoy the support from the government but do not need to carry out social responsibilities. The motivations of these various entities are different when they operate the listed firms, so they need to be distinguished. I hand collect the data of the ownership in Chinese listed firms and classify the shareholders into four major categories, state, foreign, private and other. The state ownership is further divided into 14 sub-categories based on the administrative levels, functions and objectives. The scheme identifies

the actual owners of a certain type of shares and separates the state ownership to provide an accurate and comprehensive analysis of the effect of state and agencies.

Using the new classification developed in the thesis, I investigate the effects of ownership structure on firm performance from three aspects: the types of ultimate controllers in Chapter Two, direct controlling ownership in Chapter Three, and administrative levels and functions of state ultimate control in Chapter Four.

5.1 Summary of Findings

In Chapter Two, I study the effects of different types of ultimate controllers on firm performance. The results show that the listed firm controlled by Central SASAC or Central Asset Bureau has higher firm output than others since the governments provide political and financial benefits. In addition, most state controllers can increase firm employment when they control the listed firms, as they obey the instructions of the government to fulfil social responsibilities such as absorbing employees. The Municipal Asset Bureau and Municipal SASAC as the ultimate controller is negatively related to the firm's profitability, but the Central Asset Bureau can improve it when controlling the listed firm. It is necessary to separate different types of state ultimate controllers, as not all of them have to fulfil social responsibility at the cost of firm profitability. Besides, as ultimate controllers, the Provincial Department and Provincial SASAC positively affect firm investment. The positive relationship between Provincial Department/SASAC and firm investment provide evidence that the ultimate controllers at the provincial levels have access to sufficient capital for investment.

In Chapter Three, I study the effects of sixteen types of largest shareholders on firm performance and find that few largest shareholders have an impact on firm performance. In a

listed firm, the direct controlling shareholders, namely the largest shareholders, must follow the guides of the ultimate controllers and cannot decide the development direction and have limited impacts on firm performance. I also estimate the effects of the interaction between direct controlling ownership and the types of largest shareholders on firm performance. The results show a positive relationship between the interaction between the types of largest shareholders and direct controlling ownership and firm profitability and operating efficiency. However, the effects of direct controlling ownership are limited. A 1% increase of the direct controlling ownership only affects less than 1% of firm performance.

In Chapter Four, I study the effects of administrative levels and functions of state ultimate control on firm performance. The empirical results show that firm output is significantly improved in the listed firms controlled by the SASAC and governmental agencies at Central or Provincial levels. The state controllers at Central or Municipal levels have a positive impact on firm employment, and the state controllers at the Municipal level negatively affect firm profitability, productivity, and operating efficiency. I also examine the effects of the interaction between ultimate controlling ownership and state ultimate controllers on firm performance. I find that the increase of state ultimate controlling ownership improves firm productivity and operating efficiency. Moreover, I investigate the effects of the interaction between firm hierarchy and state ultimate controllers on firm performance. The results are not consistent across different performance measures. The extension of the firm hierarchy could improve the output in the listed firms controlled by SASAC, the employment of Department, SASAC and SOE controlled listed firms, but also decrease the Tobin's Q of Government, Asset Bureau, SASAC, SOE and Public Institution controlled listed firms. Furthermore, I analyse the effects of the interaction between control methods and state ultimate controllers on firm performance. I find that the employment and output in the listed firms controlled by the SASAC are increased

when it gets the control rights through one large shareholder. For the Department and ultimate controllers at the Central level, the firm profitability is improved when the controllers obtain control rights through several shareholders.

5.2 Contributions

The first and main contribution in this thesis is to identify twenty-one different types of shareholders within the business groups based on their administrative levels, functions and objectives. I use hand-collected data to develop a new classification that helps differentiate between state agencies. I use different administrative levels such as Central, Provincial and Municipal levels as one dimension and functionality as another dimension of this classification.

Another gap in previous work is the performance measures being limited to mainly financial performance. Current research fails to extend the scope of performance, which is focusing on financial performance such as returns on assets (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Chen et al, 2008; Firth, Lin and Zou, 2010; Chen et al., 2011; Liao, Liu and Wang, 2014; Jiang, Rao and Yue, 2015; Liu, Wang and Zhu, 2021). This is because the previous work treats state ownership as one variable without due attention to types and layers of state organisation and their distinct objectives. A more comprehensive point of research lies on the different conceptual dimensions of performance, including non-financial performance, which may be the principal objectives of specific types of owners. I construct the analysis with the understanding that the Chinese government has a holistic view and uses state apparatus carefully in integrating the market economy to their other targets. The investigations in the thesis relate each administrative level of shareholders to different firm objectives, including

not only financial performance but also employment, investments and productivity. This is the second contribution in this thesis.

Thirdly, the thesis contributes to the business group literature by providing empirical analysis about the group ownership and performance outcomes. It is worth investigating how concentrated ownership, which is represented by the control of ultimate owners, direct controlling ownership and ultimate controlling ownership in this thesis, affects the firm's outcomes in terms of their distribution among different types of shareholders. Furthermore, the thesis also contributes to the agency theory literature by showing whether the agency conflicts exist between the ultimate controlling shareholders and minority shareholders.

5.3 Implications and Limitations

The findings of this thesis provide essential policy and managerial implications since the Chinese government is promoting enterprise reforms and trying to transform state-owned enterprises into market-driven, competitive and profitable firms. I recommend that the policymakers pay great attention to privatisations. The privatisations may decline the large state-owned listed firms' employment, firm output, and investment. Without political support from the government and access to capital, the privatised firms would suffer a decrease in employment, firm output and investment. It is an effective method to improve the output and investment of local and small SOEs by providing sufficient financial and political supports. My suggestion to the investors is that the largest shareholder cannot decide the development direction of the listed firms and must follow the instructions from the controller. It is the ultimate controller making the decision rather than the largest shareholder. The positive effect of the interaction between the state ultimate controllers and their ownership on firm performance could be used by the regulators when they expect to improve firm productivity

and operating efficiency. In addition, the ultimate controllers could increase firm output and employment by extending the internal control structure within the business group and centralising the ownership in one large shareholder.

In the thesis, I investigate the effects of the ultimate controllers, direct controlling ownership and ultimate controlling ownership on firm performance. The industry has been studied in the previous literature (Sun and Tong, 2003; Wei, Xie and Zhang, 2005; Cao, Pan and Tian, 2011; Liao, Liu and Wang, 2014; Jiang, et al., 2018; Zhang and Liu, 2020; Liu, Wang and Zhu, 2021) and could be an important factor affecting the relationship between the ownership structure and firm performance. For example, the Chinese government gives political benefits to the industries of export. The listed firms controlled by the ultimate controllers at high administrative level are supposed to receive more benefits as they have closer relationship with the policy makers. Also, the innovation has become a crucial performance measure in recent years. The innovation reflects the conflict of interest between government agents and private shareholders (Tan et al., 2020; Liu, Wang and Zhu, 2021). Better interest alignment leads to the more efficient allocation of resources to innovative projects. The further work could include the estimations about the effects of ultimate controllers and their controlling ownership on firm performance in different industries, and estimations about the effects of the ownership structure on firm innovation.

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Appendix A. Chinese Background

In China, only recently the majority of listed firms' shares are tradable. The privatization process in China can be treated into multiple stages, specifically two stages standing out (Jiang and Kim, 2015). The first stage is the opening of the stock markets in the early 1990s, which allowed for public ownership of stocks. The second stage is the split share reform which took place in 2005. The split share reform is to transform the non-tradable shares into tradable shares. The split share structure is presented in Figure A.1. With the split share structure, the managers of the state-owned enterprises had few incentives to improve firm inefficiencies. The government had made concession and transferred the non-tradable into tradable in 2005.

When the Split-Share Structure Reform is completed, the Chinese stock market is no longer different from international markets in terms of pricing and valuation. By the end of 2007, almost all firms had established a set plan and a detailed timetable to gradually convert all non-tradable shares to tradable shares. More than half the firms had more tradable shares than non-tradable shares. Specifically, in 2007, the mean (median) percentage of shares that are tradable, by firm, is 53.8% (53.9%). By 2012, the majority of shares are tradable in more than half of the firms. Specifically, the mean (median) percentage of shares that are tradable, by firm, is 76.5% (95.4%) (Jiang and Kim, 2015). The Figure A.2 shows the mean percentage of non-tradable and tradable shares in listed firms from 2003 to 2012.

Figure A.1 Split Share Structure

The figure shows the split share structure in the listed firms of China before 2005. The left-hand side presents the non-tradable and the owners of these shares. The right-hand side presents the tradable and the owners of these shares.

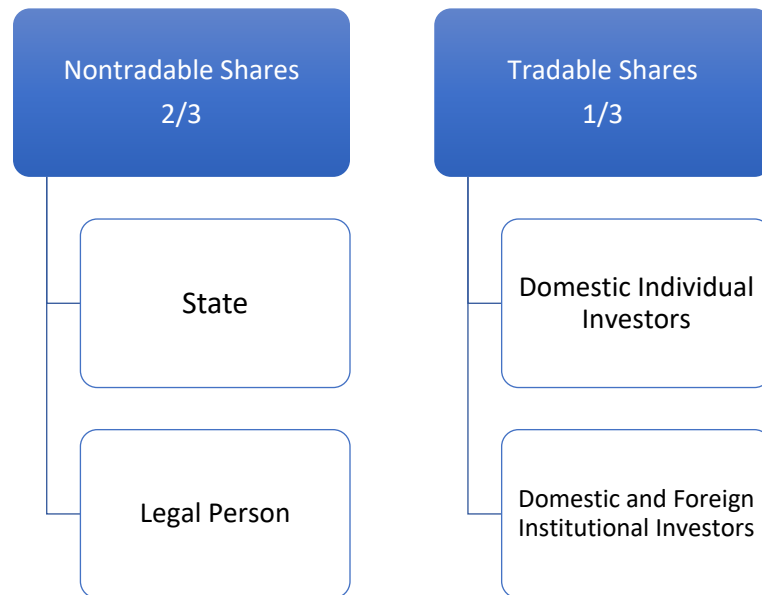
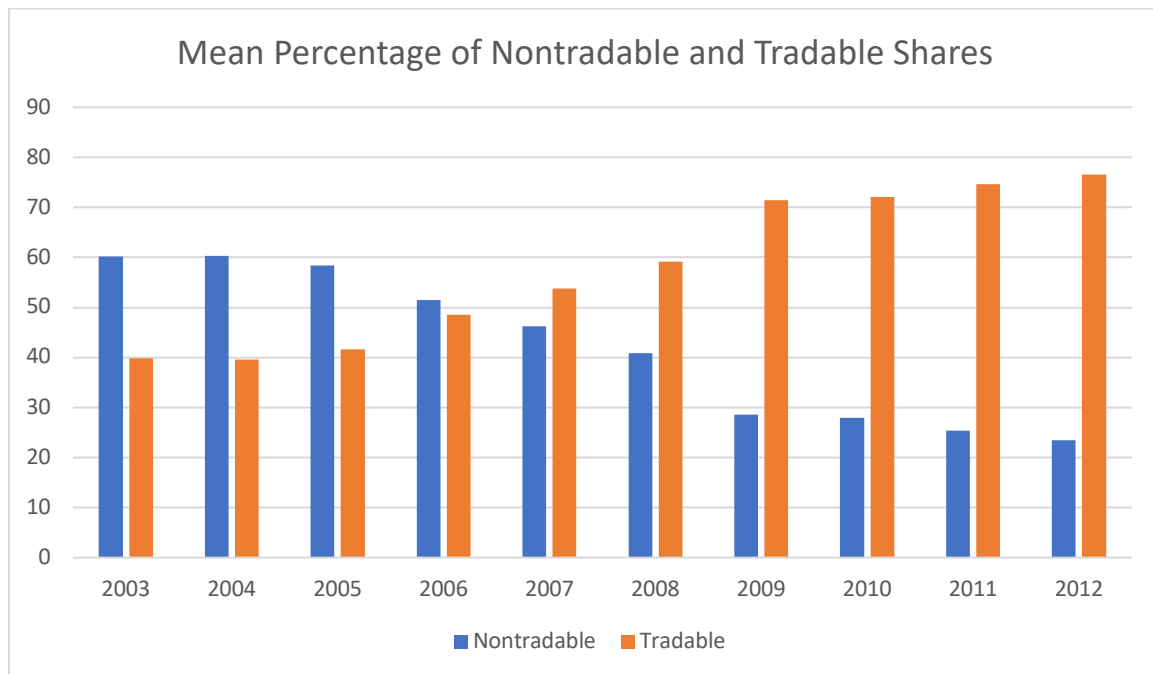


Figure A.2 Proportion of Non-tradable and Tradable Shares in Listed Firms

The figure shows the proportion of non-tradable and tradable shares among all the shares in the listed firms of China from 2003 to 2012. Vertical axis shows the average percentage of share among all shares; Horizontal axis shows the year.



Source: Jiang and Kim (2015)

Appendix B. Control Structure Model of Chinese Listed Firms

Listed companies have become the main force of economic development. In the book *'The Influence of Controlling Structure, Mergers and Acquisitions on the Performance of Listed Firms in China'*, Chen (2011) discusses that the interests of different shareholders can result in different governance issues. Berle and Means (1932) discover the dispersion characteristics of equity in U.S. companies in 1932. Since then, the research of corporate governance has focused on agency problems of the widely held companies. Scholars treated the American decentralized equity structure as default. Eisenberg (1976), Demsetz (1983), Demsetz and Lehn (1985), Shleifer and Vishny (1986), Morck, Shleifer and Vishny (1988) started to rethink the theory in the 1970s. Their empirical analysis from different countries points out that not every company in each country has a decentralized equity structure. There even exists ownership concentration in the Anglo-American countries. Due to the change of the theoretical basis, research turns to focus on large shareholders and their influences. By the end of the 1990s, La Porta, Lopez-de-Salines and Shleifer (1999), Claessens, Djankov and Lang (2000), Faccio and Lang (2002) and other scholars also found that equity concentration is ubiquitous in the emerging markets, along with the enterprise groups and ultimate controllers control large enterprises through cross-shareholdings, pyramid shareholding structure and other methods.

The controllers under different ownership structure have different objectives to maximize self-interest. When the decentralized shareholding managers control the firms, their goal is to maximize personal utility which deviates from the pursuit of corporate profits and value by the shareholders (Coase, 1937; Jensen and Meckling, 1976; Fama and Jensen, 1983). To achieve the maximum of personal utility, managers use various methods to affect the company's decisions, such as controlling their own favourable investment projects (Baumol, 1959; Marris,

1964; Williamson, 1964; Jensen, 1986), using trenches defence to preserve jobs (Shleifer and Vishny, 1989), and so on.

In emerging market countries, the ultimate controllers of enterprise groups can separate the cash flow rights and control rights through the pyramid structure, the cross shareholding, category share and other methods. Controlling shareholder may have high cash flow right in some subordinate companies of the group and low cash flow rights in other subordinate companies. The controlling shareholders tend to transfer the profit from the enterprises with low cash rights to those with high cash flow rights. These action affects the value of the subordinate enterprises and small and medium shareholders' interests (Friedman, Johnson and Mitton, 2003; Chang, 2003).

The ownership structures are different in countries across the world. Dispersed ownership is typical in listed firms of the America and UK, and equity concentration also exists in the rest of Europe and east Asia countries. Some enterprises only have one large shareholder, while multiple large shareholders may coexist in other enterprises. The ultimate controllers are widespread in the listed companies of east Asian countries. They obtain the control rights through the pyramid structure, cross-shareholdings, category shareholding and other methods. The control structure could be divided into the following four types: First, the scattered equity and managers control; Second, the equity concentration and large shareholder control; Third, large shareholders coexistence and control balances; Last, enterprise group with ultimate control.

In their classic book "Modern Enterprise and Private Property", Berle and Means (1932) proposed that the equity ownership is scattered among the small shareholders in the widely

held companies, and the control rights are held by the managers. The enterprises are operated by professional managers who are irresponsible to shareholders. The book has stimulated some research about managers, including Baumol (1959), Marris (1964), Penrose (1959) and Williamson (1964), and Galbraith's (1967) widely influential report. Chandler (1977) points out that there are two characteristics of modern enterprises: First modern enterprises contain many independent business units; Second, modern enterprises are managed by a hierarchically structured manager group. Through the empirical analysis of large companies in the United States, Chandler (1977) further shows that bankers and family do not have control rights in many modern industrial and commercial enterprises. Ownership becomes fragmented, and shareholders do not have obligations and influences on top management. Paid managers are responsible for both short-term business activities and long-term decisions. High-, medium- and low-level management are all controlled by them.

As the uncertainty of the future is difficult to handle and forecast, a perfect contract is technically impossible. Due to the incomplete contract, managers and investors have to assign the residual control rights, namely the decision-making rights in the case when the contract not fully anticipates (Grossman and Hart, 1986; Hart and Moore, 1990). The investors do not have enough knowledge or information to make decisions. The residual control rights are obtained by the managers. Shareholders and managers have distinguished interests, goals and motivations. The shareholders pursue profits and firm value, while the managers concentrate on personal utility. In the modern companies, as the equity structure is dispersed, minority shareholders have no interest in and ability to supervise the managers. The managers have the privileges to control the management of the enterprises. However, the managers possess very few stocks of the company. The incentive effects of dividends are very weak, which may cause deviation of the interests between shareholders and managers – the agent problem. Managers

may embezzle enterprise capital directly, such as absconding with company money, transfer pricing and so on. Managers also embezzle enterprise capital indirectly. The means of indirect encroachment include high salary, on-the-job luxury consumption, management trenches, excessive diversification etc. To sum up, managers maintain the control rights in the companies with diffuse ownership and damage the interests of the shareholders.

China as an emerging market country established its stock market two decades ago. The market is far from mature compared with the developed countries. The ownership and control structure in Chinese has its unique characteristics. The equity of listed companies is highly concentrated. The average shareholding rates of the largest shareholder and top three shareholders are 39.98% and 52.23% respectively in 1995 (Shenzhen CSMAR Data Technology Co., 2017). The rates increase in 2005 and are 40.10% and 53.76%, respectively. Secondly, non-tradable shares account for a large proportion in listed firms. The largest shareholder of listed companies is normally a holding company, rather than a natural person. Most of China's listed company is transformed from former state-owned enterprises, collective enterprises and private enterprises. The state and legal persons convert a part of the original assets to the non-tradable shares of listed companies. The former enterprise act as the holding company of the listed firm in the pyramid structure. The ultimate controllers exist in the listed firms. La Porta, Lopez-de-Silanes and Shleifer (1999) groundbreakingly investigate the issue about ultimate control. They follow the ownership chain to find out the person/entity with the most voting rights. They definite a firm's ownership structure is pyramid if it has an ultimate owner and there is at least one publicly traded company between it and the ultimate owner. Pyramids enable controlling owners to achieve control of a firm by committing low equity investment while maintaining tight control of the firm. Pyramiding is common in Asian countries and is typical of large ethnic Chinese firms. The ultimate controller is or is not the shareholder of listed firm due to the

pyramid structure. The effect of their control over the firm cannot be neglectful. The Chinese government assured that as long as the state kept majority stakes in strategic sectors, it would not only continuously enjoy the rights of the largest shareholder but would also be able to suck in and ‘leverage’ funds of private sources through capital market finance. SOEs would be able to tap into the growing national surplus more effectively. The middle-tier state asset management system was built to centralize financial resources and the financial management of the public sector. The State Council issued the ‘Guidance of the state council on deepening reform of state-owned enterprise’ (Xinhua Net, 2015b) and ‘Opinions of the state council on reform and improvement of the state-owned assets management system’ (Central Government Website, 2018b). Under these rulings the local governments are required to accelerate the establishment and reform of the state-owned capital investment and operation companies. The state-owned capital investment and operation companies are the wholly state-owned companies established within the authority of the state. They are the professional platforms for the operation of state-owned capital and perform the state investors’ duties.

State-owned asset/capital management and investment companies have four features in common: first, they are both corporate companies authorised by the state to operate state-owned assets and perform investor duties on behalf of the state; second, they both execute the development strategies of state-owned assets and regard the maintenance and appreciation of state-owned asset-value as the primary goal; third, they both aim to highlight marketised reform and managerial methods in investment management and corporate governance to enhance the vitality, control and influence of state-owned economy; fourth, they are both a vital part of national security and are solely state-owned.

There are four differences between the state-owned asset/capital management and investment companies. First, the function of the state-owned asset management companies is operating state-owned assets, including the property rights and state-owned stake of SOEs; the function of the state-owned asset investment companies is based on industrial capital investment, including project investment and financing. Second, the control mode of the state-owned asset management companies is more about using a strategic approach in the financial control of the stockholding and joint-stock enterprises, rather than participating in their daily operations. Third, the objective of establishing the state-owned asset management companies is to promote the rational flow of state capital, improve the distribution and quality of state-owned capital, enhance the efficiency of social resources, and increase the value of state-owned capital in operation; the objective of establishing the state-owned asset investment companies is cultivating competitive industrial power and promoting optimal adjustment of the national economic structure. Fourth, the development of the state-owned asset management companies concentrates on the market mechanism to allocate the state-owned assets more effectively in the capital market, such as mergers, divisions, setting up of joint ventures, property rights transfers or replacements, relying on the guidance of the government to correct and remedy market failures, such as increasing the liquidity of state-owned assets by integrating industrial and financial capital. Management companies focus on optimising the state-owned assets, which they may disinvest when necessary, while the investment companies put more attention on investing.

The number of state organisations involved has been large enough to serve as a playing field unto itself, with players competing to grab favourable financial access and resources, maximizing their holdings, and climb the shareholding ladder to control the appointment of

managers and investment decisions. The adoption of the model is a middle road the Party-state has chosen between 'dirigisme' and complete liberalization.

To understand the control structure of listed firms in China, we first need to know about the government's governance mode in the socialist country. Zhou and Lian (2012) propose a theoretical model about Chinese government authority relations from the perspective of incomplete contract and new property rights theory. The model conceptualizes the control rights of the governments at all levels into the following three dimensions: target enactment right, inspection and acceptance right, incentive distribution right.

The different allocations of the control rights among central government, middle government and the grassroots government lead to different modes of governmental governance and then induce corresponding behaviors. The theoretical model provides a unified theoretical framework for the analysis of Chinese government's governance structure, authority relations, types of behaviors and the transformations in different areas and stages. As the state ownership in listed firms is a representative of government's control over economy, Zhou and Lian's (2012) model can also be used to analyze the control structure of state-owned enterprises. This part introduces, explains the theoretical model about Chinese government authority relations and lays the foundation for the analysis of the control structure in Chinese listed firms.

In recent years, the studies about Chinese government have made great strides, especially about government behaviours of the grassroots governments and specific areas (such as birth control). Lots of research focus on the actions and strategies when the grassroots governments are implementing policies. On one hand, the local governments pressure their subordinates in the implementation process. They force the lower-level officials to take measures to ensure

accomplishing tasks from superiors. “Pressure System” and “Level Upon Level” are common in Chinese government governance. On the other hand, grassroots officials use juggling strategies and collusions to skimp or weaken the policy implementation. The same government agencies often play conflicting roles, namely downward pressure, layer upon layer, and conspire to deceive higher levels at the same time. Zhou and Lian’s (2012) reference the incomplete contract and new property rights theory in the economics, provide a “control” theory, pay attention to and interpret the distribution of control rights among the governments at all levels, and come up with a unified theoretical framework for the government governance modes and behaviours. Their model is based on three hierarchical organisation management levels and explained in steps: firstly, they propose three dimensions of control rights on the basis of incomplete contracts, property rights, residual control rights and organisational authority relations; secondly, they use the framework to re-examine the acquainted government governance model, namely the administrative contract system; thirdly, they extend the control theory, put forward a unified model, and explain various distributions of the control rights of Chinese government and corresponding management modes.

Organisational authority relations refer to the legal authority established on the basis of formal responsibilities within the organisation. Zhou and Lian (2012) propose a three-level hierarchical organisation model, namely principal, manager and agent. The three hierarchies of Chinese governments - central government, middle government and grassroots government – can be posited in the model shown by Figure B.1. Specifically, the central government as principal have final authority to formulate policy, design organisation as well as setting incentive, performance evaluation; the grassroots government as the agent have the responsibility to implement the top-down instructions and policies. In the model, central government authorizes the middle government (manager) to supervise the policy implementation of the grassroots governments.

Insert Figure B.1

Over the past 25 years, the incomplete contract theory in economics focus on the distribution of property rights and related problems among the economic participants (Grossman and Hart, 1986; Hart, 1995; Hart and Moore, 1988). Any contract in real life cannot take all possibilities of the relations between or within organisations into account. Because of the incomplete contract, the way to use the assets cannot be completely confirmed in advance. Thus, the asset owners usually hold residual right of control, namely the right beyond assets possession and contract provisions, in any negotiated contract. In this theoretical framework, an enterprise is the integration of assets, and assets owner holds the residual control rights. The concept of property rights in the theory of incomplete contract is different from that in traditional economics theory. The property right in incomplete contract theory refers to the residual control right of assets rather than the residual claim of income or other assets. In the employment system, the principal controls policy formulation and implementation process through hierarchical structure. This means the principal controls organisation production, incentive design, performance evaluation and so on. In the contract system, principal set political goals (such as economic growth, pollution emission reductions) for the managers (lower-level governments) and ask them to achieve the targets on schedule. The principal entitles the residual control rights to the managers which means the managers have the right to decide the implementation of contract, resource allocation, incentive design, etc. The managers have the real authority in their jurisdiction.

In the three-level hierarchical organisation model, the relations among principal, managers and agent could change with the allocation of control rights. Government structure can be regarded as the distribution of control rights, and the distribution is decided by the charter, law or

tradition. The allocation of control rights is not unchangeable. For example, in the early stages of the family planning policy, the central government held all control rights, including goal setting, inspection and acceptance, and incentive design. But in the later stages, the central government entitled the execution and inspection to the middle governments. Therefore, the distribution of residual control rights among organisational participants decides the authority relationship within the organisation and the different types of governance modes. The allocation of control rights may also be subtle. Aghion and Tirole (1997) discuss about the formal authority and real authority within the organisations on the basis of incomplete contract theory. Formal authority refers to the authority from the official status, while the real authority refers to the actual authority from the possession of the information. The principal may entitle some part of the real authority to the managers strategically when considering the cost of time and effort. In other words, the managers obtain the actual control rights of the assets. The significance to distinguish formal authority and real authority is that the real authority may be transferred to managers informally without changes of formal authority. Then, the governance mode may experience significant change subsequently.

Zhou and Lian (2012) conceptualize the control rights in the operating processes of organisations and propose three dimensions:

Firstly, target enactment right, refers to the rights of principal to set goals and tasks for the subordinates. Target enactment right is the core of the relationship between bureaucratic authority. Targets may be decided by the principal unilaterally and implemented following the top-down rule. Targets may also be generated from the consultation of principal and manager, similar to the contract through negotiations.

Secondly, inspection and acceptance right, refers to the rights check the completion of contracts. The inspection and acceptance right is affiliated to the target enactment right. After setting the

targets, principal may exercise their inspection and acceptance right or delegate the right to managers. The inspection and acceptance right need to be distinguished from the incentive distribution right. The inspection and acceptance right is to make sure the completion of contracts rather than to evaluate the performance of agents.

Thirdly, incentive distribution right, refers to the right to set incentives, evaluation mechanism, rewards and punishments for the agents, and the resources allocation during the contract implementation. Incentive distribution right can be treated as a specific control right independent from target enactment right and inspection and acceptance right. The inspection and acceptance right and incentive distribution right can be separated and unrelated. The former may be held by the principal, and the latter is held by the managers. It is important to note that the right of setting incentives for managers is still held by the principal which is indicated in the contract. The right of setting incentives for agents may be controlled by the principal or the managers.

The distribution of control rights is not arbitrary but with corresponding costs. In the three-level government model, there are a wide range of administrative and spatial distance among the central government (principal), middle government (manager), and grassroots government (agent). The separation of control rights is necessary in many situations. For example, in the field of environmental regulation, there are dozens of management projects and facilities construction of the sulfur dioxide emission reduction tasks in each county. Thus, there are hundreds of projects at the municipal level, thousands of projects at the provincial level and more at the central level. If the central government (such as Ministry of Ecology and Environment) holds all control rights, the implementation process will be inevitably

overwhelmed. To exercise effective incentive allocation, the central government need to know the accurate information about the degree of efforts and objective situations of every agent (such as each county environmental protection bureau, the relevant enterprise, and management project). Obviously, it will be costly for the central government to exercise the rights. The scope and strength to exercise the inspection and acceptance right is also limited. The costs are too high to handle by the central government when conducting a comprehensive inspection on all projects. Therefore, in the actual operation of the Chinese government, the separation and distribution of the control rights at different levels are very common.

From the perspectives of control structure, the policy implementation process under the administrative contract system can be described as follows: first of all, the central government (principal) set specific policy targets (such as pollutant reduction ratio, the fertility rate, etc.) and make “contracts” with the middle governments (such as provincial and municipal governments). Then, the central government exercises inspection and acceptance right, periodically reviews and assesses the results of policy implementation, in order to ensure the middle governments as manager achieve the policy targets on time. At last, the core of administrative contract system is to entitle the incentive distribution right to the middle governments.

The theoretical model defines the control rights on three dimensions and has significance about the behaviours within the organisation. In the administrative contract system, the principal only cares about the results of policy implementation from the managers. The principal holds not only the target enactment right but also the inspection and acceptance right, ensuring the expected outcomes of the “contract”. The incentive distribution right is transferred to the managers. Because the principal is only concerned with the outcomes rather than the

implementation and deployment, the right of implementation is entitled to managers to arouse their enthusiasm. Moreover, in any sizeable organisation, it costs a lot for principal to obtain information about the agents' efforts when exercising incentive distribution right. The managers deploy and participate in the policy implementation process; thus, they can access the accurate information about the quality of agents' work and exercise the incentive distribution right better. The distribution of internal control rights varies with circumstances and fields. The roles of governments at all levels are not static but changes with the allocation of control rights. More importantly, in the long history of China's national system, the central government as principal maintains the final right of arbitrary interference. As the state ownership in listed firm is a representative of government's control over economy, the three-level hierarchical organisation model could also help us to understand and explain the control structure of Chinese listed firms.

The annual financial reports of the listed firms disclose the control structure of the year. The control structure shows relationship between the ultimate controllers and the shareholders of the listed firms. From the control structures of the listed firms, I summarize three major methods through which the ultimate controllers obtain control rights: the ultimate controller is the upper-level entity of largest shareholders and obtains control rights through control structure; the ultimate controller is the upper-level entity of non-largest shareholders and obtains control rights through control structure; the ultimate controller is the upper-level entity of both largest and non-largest shareholders and obtains control rights through control structure. Other methods such as equity transfer, largest shareholder gives up a part of voting rights to make concession to the ultimate controller etc. are the reorganised process of the control structure. As there are few observations of the processes, I remove these observations and keep the three major methods in the sample. In this part, I first show the three methods through

which the ultimate controllers obtain control rights and provide case to explain every method. Then I discuss the control methods are not changeless.

A. The ultimate controller is the upper-level entity of the largest shareholder and obtains control rights through control structure.

Shenzhen Overseas Chinese Town Co., Ltd referred as HQCA is the listed firm with stock code 00069. The firm is operating tourism and related business. The Figure B.2 shows the control structure of HQCA in 2011 which is disclosed in the annual report.

Insert Figure B.2

The largest shareholder is Overseas Chinese Town Enterprise co. which is wholly owned by the central SASAC. The duties of SASAC have been discussed before. This part introduces the responsibilities of the middle-tier company - overseas Chinese town enterprises co. The overseas Chinese town enterprises co. as the intermediate between the Central SASAC and listed firms. It acts as the bridge for information bidirectional communication. For example, the secretary of the corporation attended the discipline inspection conference held by the state-owned assets supervision and administration commission on 14th January 2010. On 19th January 2010, the corporation held a special meeting to convey the tasks from the discipline inspection conference of the SASAC (The Overseas Chinese Town Enterprises Co., 2010a). The secretary required the managers of the corporation and the subsidiaries to strengthen supervision, improve policy execution and provide support for the listed firms in the group. The overseas Chinese town enterprises co. also submit the information of the group 75 times to the SASAC in 2010. The information includes workplans, budgets, policy implementation etc (The Overseas Chinese Town Enterprises Co., 2011a). In addition, the corporation has the responsibilities to supervise its subsidiaries. On October 26th and 29th 2010, the secretary

examined the business of the hotel property and tourism departments. The secretary listened to the reports about assets and operation, the existing deficiencies and future development plan etc. After that, the secretary stressed that the managers need to strengthen the enforcement of work and pay attention to culture construction in the task execution (The Overseas Chinese Town Enterprises Co., 2010b) . Furthermore, the corporation needs to fulfil social duties. On 14th March 2010, the strategic cooperation forums of the central enterprises and Guangdong Province and signing ceremony were held in Beijing. From a strategic and long-term perspective, the central enterprises need to the deepen the cooperation with Guangdong province, and strive to realize the complementary advantages, mutual benefit, common development, to make contributions to social and economic development in Guangdong province. At that time, the Guangdong province has cooperation with 49 central enterprises, which included around 360 cooperation projects and total investment of about 150 million yuan (The Overseas Chinese Town Enterprises Co., 2011b).

B. The ultimate controller is the upper-level entity of non-largest shareholders and obtains control rights through control structure.

AVIC SANXIN Co., LTD referred as ZHSX is the listed firm with stock code 002163. The firm's business includes curtain wall, special glass materials and aero glass. The Figure B.3 shows the control structure of ZHSX in 2010 which is disclosed in the annual report.

Insert Figure B.3

The largest shareholder is a nature person with a shareholding rate of 19.68%. According to the annual report, the second largest shareholder - Shenzhen Guihang Industry Co., Ltd. is the subsidiary of the third largest shareholder - China National Guizhou Aviation Industry (Group) Co., Ltd. The China National Guizhou Aviation Industry (Group) Co., Ltd. is the solely funded subsidiary of the seventh shareholder - AVIC General Airplane Co., Ltd. Therefore, the second,

third and seventh shareholders comprises the shareholders of the listed firm which own the shares on behalf of the ultimate controller Central SASAC. Even though the private individual is the largest shareholder, his/her voting rights are less than the total voting rights of the second, third and seventh shareholders. The listed firm is ultimately controlled by the Central SASAC.

C. The ultimate controller is the upper-level entity of both largest and non-largest shareholders and obtains control rights through control structure.

Shenzhen Properties and Resources Development (Group) Ltd. referred as SWYA (Stock Code: 000011) is a state-owned publicly listed enterprise. The listed firm is a professional company of real estate, and also engages in taxi transport, restaurants. The Figure B.3 shows the control structure of SWYA in 2016 which is disclosed in the annual report. Its ultimate controller in 2016 is the Shenzhen SASAC which is a government agency with the listed firm's voting rights 63.82%. The Shenzhen SASAC obtain control rights through two layers. The first layer comprises two companies: Shenzhen Construction Investment Holding Company with a shareholding rate of 54.33% and Shenzhen Investment Management Company with a shareholding rate of 9.49%. In 2004, the Shenzhen government merged Shenzhen Construction Investment Holding Company, Shenzhen Investment Management Company and Shenzhen business holding company as the Shenzhen Investment Holding Company. The Shenzhen Investment Holding Company was established on 13th October 2004. It is a solely state-owned limited liability company and provides the guarantee for municipal state-owned enterprises, manages the state-owned equity, reorganises the enterprise assets, restructures and operates capital, equity investment etc. The Shenzhen Investment Holding Company is the second layer in the control structure and has 63.82% voting rights of SWYA. The Shenzhen SASAC as a government department has the responsibility to manage the Shenzhen Investment Holding

Company and has 100% control over the company. Thus, the ultimate controller of SWYA is Shenzhen SASAC.

Insert Figure B.4

The Shenzhen SASAC has the responsibility to establish policy for the management and operation of state-owned assets. For example, the Shenzhen SASAC issued the ‘Measures to manage the transfer of state-owned shares in listed firms’(Shenzhen SASAC Website, 2015). In the ‘measures’, Shenzhen SASAC regulates which type of state-owned shares can be transferred through the firm’s internal decision-making process, which types of state-owned shares need to be approved by the SASAC before transfer, and which types of state-owned shares approved by the SASAC can be transferred without the disclosure of transfer information. The Shenzhen SASAC also provides ‘Guide for the budget management of municipal state-owned enterprise’ (Shenzhen SASAC Website, 2017a). The ‘guide’ formulates the process of enterprises’ budgeting preparation and audit. The enterprises need to comply the draft of annual budgets before the end of December and report to the SASAC. The adjustment of annual budgets is required to be approved by the SASAC. The Shenzhen SASAC controls the administrative rights for the management of state-owned assets, and also grasps the inspection and acceptance rights in hand. The ‘Guide for the budget management of municipal state-owned enterprise’ presents that the SASAC will implement the budget management appraisal inspection from April to May every year. The inspection results will be a part of the assessments of the performance of the firm’ managers. Moreover, the SASAC issued the ‘Guide for the profit distribution plan and profit collection of municipal enterprises directly controlled by the state’ (Shenzhen SASAC Website, 2017b). The enterprises need to report the draft of the profit distribution plan to the SASAC. Then the board of directors of the enterprise can implement the approval process. The enterprises must complete the profit delivery before

30th June. If not paying no dividends at all, SOEs will be educated and ordered into handing over their shares of profit to the state at a hiking rate. SOEs had to pay 10, 20, or 25% of their profit depending on the profitability of the sectors they were in.

Shenzhen investment holding co., LTD was established in October 2004 and acts as a bridge between the government and the market. The main function of Shenzhen investment holding co., LTD. is authorized by municipal SASAC and holding the shares of part of municipal state-owned enterprises, promoting its subordinate companies restructuring and reorganisation, proving financing guarantee for the government and municipal SOEs, and working as a government policy investment platform. Since its establishment, the Shenzhen investment holding co., LTD has completed part of the reform of municipal state-owned enterprises and municipal administrative institutions, adjusting the capital structure and integration of assets. First of all, the Shenzhen investment holding co., LTD is the propagandist and implementor of Shenzhen SASAC's policies. The director of Shenzhen SASAC occasionally investigates the completion of tasks assigned to the investment holding company. The chairman of investment holding company stresses that the company must carry out the instructions and task from SASAC efficiently and concentrate efforts in choice of capital operation projects, determine capital operation ideas, and arrange capital operation plan. The company should make full use of the resources of the subsidiaries to ensure capital operated productively and efficiently. For the crucial issues, the company need actively strive for the direct participation and guidance of Shenzhen SASAC (Shenzhen Investment Holding Co., LTD Website, 2014a). Also, the investment holding company convened financial director meeting regularly. The meeting briefed the annual appraisal results and convey the inspection work assigned in the municipal SASAC conference (Shenzhen Investment Holding Co., LTD Website, 2013). The chief accountant in the 2013 meeting summarized annual financial work and required other financial

directors to innovate supervision approaches, improve supervision, earnestly implement the requirements of municipal SASAC, supervise the budget execution of every subordinate company, and strengthen the regulation of state-owned capital.

Moreover, Shenzhen Investment Holding Company implements supervision on the subordinate companies on the behalf of Shenzhen SASAC. The Shenzhen investment holding co., LTD focuses on strengthening the supervision of key projects to ensure construction of financing platform completed in the high standard and quality. The board of directors and managers attach great importance to and strongly support the supervision of key projects. They actively cooperate with the board of supervisors, construct a monitoring with supervisors, discipline inspection commission and auditors. The board of supervisors also strengthen the supervision of the decision-making procedures of projects, establish and perfect the internal control system (Shenzhen SASAC Website, 2012a). The investment holding company also holds the budget auditing meeting of assigning financial officials (Shenzhen SASAC Website, 2014a). In the meeting on 19th December 2014, the financial director, chief accountant and other officials attended the meeting. 18 assigning officials made reports about budget implementation in 2014 and budget plans for 2015 of 20 subordinate companies. Various departments of the investment holding company provided requirements and suggestions in the budget rationality, shareholders transaction management, compensation and appraisal.

Besides policy implementation and supervision, the Shenzhen Investment Holding Company bears the responsibilities for the daily operation and management of its affiliated companies, such as debts collection, safety inspection and so on. The legal department of Shenzhen investment holding co., LTD has made gratifying achievements on the collect of debts. By the end of the first half in 2007, the legal department has recovered overdue loans of 85.53 million

yuan and overfulfilled the recovery tasks in the first half year. For the problematic enterprises, especially the companies may transfer assets and escape debts, the legal department ensured the seizure of effective assets by lawsuit and preserved the legal equity (Shenzhen SASAC Website, 2007). In addition, the investment holding company set up a safety inspection team to eliminate all kinds of potential safety hazard from 26th to 29th September in 2011. The team implemented comprehensive checks on the key projects, including the security in public environment, the project of incineration power plant construction, office buildings and Huaqiang hotel, the podiums of commercial buildings etc. Most the projects inspected belong to the subsidiaries of the investment holding company (Shenzhen SASAC Website, 2011). Furthermore, the Shenzhen Investment Holding Company is authorized rights to issue regulation to manage its affiliated companies. ‘Interim methods to manage the capital allocation between enterprises’ was issued by the investment holding company to increase the efficiency to use funds and decrease the financial cost among its affiliated companies. The ‘methods’ aims at building a virtual pool of capital and optimizing allocations. There are more than 70 companies affiliated to the Shenzhen investment holding co., LTD and scattered in 20 different industries. Some companies have sufficient funds but with low use efficiency. Others lacks funds and suffers the financing difficulties caused by the macroeconomic regulation and control. The ‘methods’ also regulate that the debit and credit between the companies must adhere to the principles of "equality, voluntariness, market-oriented". Moreover, the finance departments of each company need to track the loans to avoid credit risks. At the same time, the investment holding company tacks, supervises and inspects the capital flow and usage of the borrowing companies, to ensure the effective usage of borrowing funds. The investment holding company also considers the funds allocation into the performance evaluation system, assesses the scheduled debt services of the borrowing companies and capital allocations of funding companies (Shenzhen SASAC Website, 2012b).

Shenzhen Investment Holding Company normally hold meetings to spread the requirements from Shenzhen SASAC. For example, the investment holding company held the meeting of its affiliated companies' directors of the boards of supervisors on 13rd December 2013. The directors of the boards of supervisors summarized the supervision work in 2013 and reported the plans in 2014. The board of supervisors of the investment holding company deployed the supervision work according to the requirements of Shenzhen SASAC (Shenzhen SASAC Website, 2013). The Shenzhen investment holding co., LTD also holds the management meeting regularly. In the 2014 meeting, the general manager stressed the following work: improving the operation and management and ensuring the completion of budgeting plan; deepening the reform and speeding up the structural adjustment of control system; promoting the investment and financing and ensuring the completion of the investment and financing; clearing the historical problems and boosting company reform and development (Shenzhen SASAC Website, 2014b). Moreover, the investment holding company holds the risk management and internal control seminar. In the seminar of 5th September 2014, the deputy general manager of investment holding company and the directors of the affiliated companies attended the seminar. The participators analysed the risks of joint management, contract, nonlocal branch and other business modes, and shared the experience in the internal control system construction. The investment holding company attaches great importance to risk management and internal control and requires the companies to strengthen the risk management and communication (Shenzhen SASAC Website, 2014c). In the annual auditing meeting on 22nd December 2014, the Shenzhen investment holding company deployed the auditing work of the annual accounting of its affiliated companies. The chief accountant required the intermediary organs to abide the professional ethics, disclose the information honestly, and issue high-quality audit reports; the affiliated companies must pay high attention to the annual audit; the chief financial officer must support the annual audit, supervise the

auditing processes and communicate with intermediary organs in time (Shenzhen Investment Holding Co., LTD Website, 2014b). In sum, Shenzhen Investment Holding Company not only implements the policies of Shenzhen SASAC, but also supervises and regulates its affiliated companies.

The Shenzhen Construction Investment Holding Company and Shenzhen Investment Management Company are authorized by the government to manage and operate state-owned assets. The state regulates the asset management companies' duties in the 'Opinions on the implementation of state-owned capital investment and operation companies' (Central Government Website, 2018b). According to the 'opinions', the state-owned capital investment and operation companies do not have shareholders meeting. The government or assets management department (such SASAC) perform the rights of shareholders meeting. The government or assets management department may authorize a part of the rights of shareholders meeting to the company's board of directors. State-owned capital investment and operation companies set up the party organisation, the board of directors, managers, and standardize the corporate governance structure, establish and improve the decision making and supervision mechanism, and gives full play to the functions of the board of directors and managers. The company's executive director and outside directors are appointed by the government or the asset management department, and the managers authorized by the board of directors take charge of the daily operation. In addition, the state-owned capital investment and operation companies shall be in strict accordance with the relevant state regulations on financial system, strengthen financial management, and avoid financial risks. State-owned capital investment and operation companies as investors need to audit the profit allocation in accordance with the relevant laws and regulations, collect dividends on time, and hand in the profit to the government. The state-owned capital investment company tends to assess

corporate strategy implementation and capital returns of its listed firms, while state-owned capital operation company focuses on evaluating state-owned capital flows and the increment of asset value.

This part presents three cases to show the control structure in listed firm. They are Shenzhen Properties and Resources Development (Group) Ltd. with a typical three-level control structure, AVIC SANXIN Co., Ltd with more than one manager (more than three levels) and with a principal-manager-agent shareholder (less than three levels). This part also explains relevant concepts such as control structure model and hierarchy.

B.1 Shenzhen Properties and Resources Development (Group) Ltd.

Insert Figure B.5

Shenzhen Properties and Resources Development (Group) Ltd. referred as SWYA (Stock Code: 000011) is a state-owned publicly listed enterprise. The listed firm is a professional company of real estate, and also engages in taxi transport, restaurants. The Figure B.5 shows the control structure of SWYA in 2016 which is disclosed in the annual report. Its ultimate controller in 2016 is the Shenzhen SASAC which is a government agency with voting rights 63.82%. The Shenzhen SASAC obtains control rights through two hierarchies. The first hierarchy comprises two companies: Shenzhen Construction Investment Holding Company with a shareholding rate of 54.33% and Shenzhen Investment Management Company with a shareholding rate of 9.49%. In 2004, the Shenzhen government merged Shenzhen Construction Investment Holding Company, Shenzhen Investment Management Company and Shenzhen business holding company as the Shenzhen Investment Holding Company. The Shenzhen Investment Holding Company was established on 13th October 2004. It is a solely state-owned limited liability company and provides the guarantee for municipal state-owned enterprises, manages the state-

owned equity, reorganises the enterprise assets, restructures and operates capital, equity investment etc. The Shenzhen Investment Holding Company is the second hierarchy in the control structure and has 63.82% control rights of SWYA. The Shenzhen SASAC as a government department has the responsibility to manage the Shenzhen Investment Holding Company and has 100% control over the company. Thus, the ultimate controller of SWYA is Shenzhen SASAC. The structure can be divided as follows in Figure B.6 and B.7. Right-side squares show the types of principal, manager and agent described in the classification of the study.

Insert Figure B.6 and B.7

SWYA has a typical control structure. The Shenzhen SASAC is the ultimate controller, and also acts as the principal in the control structure. The Shenzhen SASAC has the responsibility to establish policy for the management and operation of state-owned assets. For example, the Shenzhen SASAC issued the ‘Measures to manage the transfer of state-owned shares in listed firms’ (Shenzhen SASAC Website, 2015). In the ‘measures’, Shenzhen SASAC regulates which type of state-owned shares can be transferred through the firm’s internal decision-making process, which types of state-owned shares need to be approved by the SASAC before transfer, and which types of state-owned shares approved by the SASAC can be transferred without the disclosure of transfer information. The Shenzhen SASAC also provides ‘Guide for the budget management of municipal state-owned enterprise’ (Shenzhen SASAC Website, 2017a). The ‘guide’ formulates the process of enterprises’ budgeting preparation and audit. The enterprises need to comply the draft of annual budgets before the end of December and report to the SASAC. The adjustment of annual budgets is required to be approved by the SASAC. The Shenzhen SASAC controls the administrative rights for the management of state-owned assets, and also grasps the inspection and acceptance rights in hand. The ‘Guide for the

budget management of municipal state-owned enterprise' presents that the SASAC will implement the budget management appraisal inspection from April to May every year. The inspection results will be a part of the assessments of the performance of the firm' managers. Moreover, the SASAC issued the 'Guide for the profit distribution plan and profit collection of municipal enterprises directly controlled by the state' (Shenzhen SASAC Website, 2017b). The enterprises need to report the draft of the profit distribution plan to the SASAC. Then the board of directors of the enterprise can implement the approval process. The enterprises must complete the profit delivery before 30th June. If not paying no dividends at all, SOEs will be educated and ordered into handing over their shares of profit to the state at a hiking rate. SOEs had to pay 10, 20, or 25% of their profit depending on the profitability of the sectors they were in.

Secondly, the Shenzhen Investment Holding Company acts as manager in the control structure. Shenzhen investment holding co., LTD was established in October 2004 and acts as a bridge between the government and the market. The main function of Shenzhen investment holding co., LTD. is authorized by municipal SASAC and holding the shares of part of municipal state-owned enterprises, promoting its subordinate companies restructuring and reorganisation, proving financing guarantee for the government and municipal SOEs, and working as a government policy investment platform. Since its establishment, the Shenzhen investment holding co., LTD has completed part of the reform of municipal state-owned enterprises and municipal administrative institutions, adjusting the capital structure and integration of assets. First of all, the Shenzhen investment holding co., LTD is the propagandist and implementor of Shenzhen SASAC's policies. The director of Shenzhen SASAC occasionally investigates the completion of tasks assigned to the investment holding company. The chairman of investment holding company stresses that the company must carry out the instructions and task from

SASAC efficiently and concentrate efforts in choice of capital operation projects, determine capital operation ideas, and arrange capital operation plan. The company should make full use of the resources of the subsidiaries to ensure capital operated productively and efficiently. For the crucial issues, the company need actively strive for the direct participation and guidance of Shenzhen SASAC (Shenzhen Investment Holding Co., LTD Website, 2014a). Also, the investment holding company convened financial director meeting regularly. The meeting briefed the annual appraisal results and convey the inspection work assigned in the municipal SASAC conference (Shenzhen Investment Holding Co., LTD Website, 2013). The chief accountant in the 2013 meeting summarized annual financial work and required other financial directors to innovate supervision approaches, improve supervision, earnestly implement the requirements of municipal SASAC, supervise the budget execution of every subordinate company, and strengthen the regulation of state-owned capital.

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and budget plans for 2015 of 20 subordinate companies. Various departments of the investment holding company provided requirements and suggestions in the budget rationality, shareholders transaction management, compensation and appraisal.

Besides policy implementation and supervision, the Shenzhen Investment Holding Company bears the responsibilities for the daily operation and management of its affiliated companies, such as debts collection, safety inspection and so on. The legal department of Shenzhen investment holding co., LTD has made gratifying achievements on the collect of debts. By the end of the first half in 2007, the legal department has recovered overdue loans of 85.53 million yuan and overfulfilled the recovery tasks in the first half year. For the problematic enterprises, especially the companies may transfer assets and escape debts, the legal department ensured the seizure of effective assets by lawsuit and preserved the legal equity (Shenzhen SASAC Website, 2007). In addition, the investment holding company set up a safety inspection team to eliminate all kinds of potential safety hazard from 26th to 29th September in 2011. The team implemented comprehensive checks on the key projects, including the security in public environment, the project of incineration power plant construction, office buildings and Huaqiang hotel, the podiums of commercial buildings etc. Most the projects inspected belong to the subsidiaries of the investment holding company (Shenzhen SASAC Website, 2011). Furthermore, the Shenzhen Investment Holding Company is authorized rights to issue regulation to manage its affiliated companies. ‘Interim methods to manage the capital allocation between enterprises’ was issued by the investment holding company to increase the efficiency to use funds and decrease the financial cost among its affiliated companies. The ‘methods’ aims at building a virtual pool of capital and optimizing allocations. There are more than 70 companies affiliated to the Shenzhen investment holding co., LTD and scattered in 20 different industries. Some companies have sufficient funds but with low use efficiency. Others

lacks funds and suffers the financing difficulties caused by the macroeconomic regulation and control. The 'methods' also regulate that the debit and credit between the companies must adhere to the principles of "equality, voluntariness, market-oriented". Moreover, the finance departments of each company need to track the loans to avoid credit risks. At the same time, the investment holding company tracks, supervises and inspects the capital flow and usage of the borrowing companies, to ensure the effective usage of borrowing funds. The investment holding company also considers the funds allocation into the performance evaluation system, assesses the scheduled debt services of the borrowing companies and capital allocations of funding companies (Shenzhen SASAC Website, 2012b).

Shenzhen Investment Holding Company normally hold meetings to spread the requirements from Shenzhen SASAC. For example, the investment holding company held the meeting of its affiliated companies' directors of the boards of supervisors on 13rd December 2013. The directors of the boards of supervisors summarized the supervision work in 2013 and reported the plans in 2014. The board of supervisors of the investment holding company deployed the supervision work according to the requirements of Shenzhen SASAC (Shenzhen SASAC Website, 2013). The Shenzhen investment holding co., LTD also holds the management meeting regularly. In the 2014 meeting, the general manager stressed the following work: improving the operation and management and ensuring the completion of budgeting plan; deepening the reform and speeding up the structural adjustment of control system; promoting the investment and financing and ensuring the completion of the investment and financing; clearing the historical problems and boosting company reform and development (Shenzhen SASAC Website, 2014b). Moreover, the investment holding company holds the risk management and internal control seminar. In the seminar of 5th September 2014, the deputy general manager of investment holding company and the directors of the affiliated companies

attended the seminar. The participators analysed the risks of joint management, contract, nonlocal branch and other business modes, and shared the experience in the internal control system construction. The investment holding company attaches great importance to risk management and internal control and requires the companies to strengthen the risk management and communication (Shenzhen SASAC Website, 2014c). In the annual auditing meeting on 22nd December 2014, the Shenzhen investment holding company deployed the auditing work of the annual accounting of its affiliated companies. The chief accountant required the intermediary organs to abide the professional ethics, disclose the information honestly, and issue high-quality audit reports; the affiliated companies must pay high attention to the annual audit; the chief financial officer must support the annual audit, supervise the auditing processes and communicate with intermediary organs in time (Shenzhen Investment Holding Co., LTD Website, 2014b). In sum, as the manager, Shenzhen Investment Holding Company not only implements the policies of Shenzhen SASAC (principal), but also supervises and regulates its affiliated companies (agents).

At last, the asset management companies - Shenzhen Construction Investment Holding Company and Shenzhen Investment Management Company - as the agents in the control structure are authorized by the government to manage and operate state-owned assets. The state regulates the asset management companies' duties in the 'Opinions on the implementation of state-owned capital investment and operation companies' (Central Government Website, 2018b). According to the 'opinions', the state-owned capital investment and operation companies do not have shareholders meeting. The government or assets management department (such SASAC) perform the rights of shareholders meeting. The government or assets management department may authorize a part of the rights of shareholders meeting to the company's board of directors. State-owned capital investment and operation companies set

up the party organisation, the board of directors, managers, and standardize the corporate governance structure, establish and improve the decision making and supervision mechanism, and gives full play to the functions of the board of directors and managers. The company's executive director and outside directors are appointed by the government or the asset management department, and the managers authorized by the board of directors take charge of the daily operation. In addition, the state-owned capital investment and operation companies shall be in strict accordance with the relevant state regulations on financial system, strengthen financial management, and avoid financial risks. State-owned capital investment and operation companies as investors need to audit the profit allocation in accordance with the relevant laws and regulations, collect dividends on time, and hand in the profit to the government. The state-owned capital investment company tends to assess corporate strategy implementation and capital returns of its listed firms, while state-owned capital operation company focuses on evaluating state-owned capital flows and the increment of asset value.

Why the Shenzhen SASAC obtains the control rights through pyramid structure instead of direct shareholding of the listed firm? There are three reasons: first, according to incomplete statistics, the Shenzhen SASAC controls 20 or more municipal SOEs. If the Shenzhen SASAC engages in the daily operation of every firm, it will bring overwhelmed costs to the Shenzhen SASAC. To exercise effective management, the Shenzhen also needs to know the accurate information and conditions about every listed firm. Obviously, it will be costly, and the scope and strength of management are limited. Second, the pyramid structure helps to separate the "profit mission" and "commonweal mission" in listed enterprises. The asset management companies (agent) can focus on the operation and increasing the firms' value and performance instead of fulfilling the social responsibility. Third, the Shenzhen SASAC owns no assets. The Shenzhen Construction Investment Holding Company (before 2004) or Shenzhen Investment

Holding Company (after 2004) act as the financing platform and lend Shenzhen SASAC a direct financial means to amass industrial assets and a platform to optimize its portfolios. In fact, the local financing platform mined a large range of rising state-owned assets and used them as collaterals. Public assets such as leased public facilities, stakes in local state-owned companies or even tax revenues have all served collateral. The most popular of them though has been mortgaged public lands. Land in China is owned by the state, but the sale and leasing rights belong to local governments. This has contributed to soaring local government debts. In June 2013, local debt has hit \$2.95 trillion; 37% of this was backed by land sales (Wang, 2015). Deleveraging become a significant mission of Chinese reform in recent years.

There are two hierarchies in this case. The first one is from Shenzhen Construction Investment Holding Company and Shenzhen Investment Management Company to Shenzhen Investment Holding Company. The second one is from Shenzhen Investment Holding Company to Shenzhen SASAC. There could be three or more hierarchies in other listed firms' control structures. The moderate extension of the hierarchy is beneficial to the improvement of the enterprise efficiency, because the extension of the hierarchy can prompt the separation between the company's management and government's administrative intervention, leave the management to competent and professional managers, promote the development of enterprises, and improve the efficiency of enterprise management. But, the extension of the hierarchy may raise the cost of information transfer and supervision, be adverse to the control of enterprise, and increase the difficulty to restrain the behaviours of the pursuit of private benefits.

The Figure A.8 shows the personnels in the control structure of listed firm SWYA. The director of Shenzhen SASAC (principal) serves as the chairman of the board of directors in the Shenzhen Investment Holding Company (manager). The executives and supervisors of SWYA

also take the positions as secretaries or undersecretaries of different departments in Shenzhen Investment Holding Company. The chairman of the board of directors in SWYA was the assistant manager of Shenzhen Investment Holding Company. According to the annual report of SWYA, its personnels are completely independent from the controlling shareholders – Shenzhen Construction Investment Holding Company and Shenzhen Investment Management Company. Even none of the directors, supervisors, managers of SWYA seemingly takes a position in Shenzhen Construction Investment Holding Company or Shenzhen Investment Management Company, SWYA still have close connection with the ultimate controller Shenzhen SASAC.

Insert Figure B.8

B.2 AVIC SANXIN Co., Ltd

Insert Figure B.9

AVIC SANXIN Co., LTD referred as ZHSX is the listed firm with stock code 002163. The firm's business includes curtain wall, Special glass materials and Aero Glass. The largest shareholder is a nature person with a shareholding rate of 19.68%. According to the annual report, the second largest shareholder - Shenzhen Guihang Industry Co., Ltd. is the subsidiary of the third largest shareholder - China National Guizhou Aviation Industry (Group) Co., Ltd. The China National Guizhou Aviation Industry (Group) Co., Ltd. is the solely funded subsidiary of the seventh shareholder - AVIC General Airplane Co., Ltd. Therefore, the second, third and seventh shareholders comprises controlling power of the listed firm. All of them are treated as the agent in the control structure model. Even though the private individual is the largest shareholder, the listed firm is still controlled by the ultimate controller – central SASAC. The control structure of ZHSX in 2010 is presented in Figure B.9. The principal in the structure is the Central SASAC, but there are more than one manager and agent of the listed firms. The

control structure can be divided into the following four structures. Right-side squares show the types of principal, manager and agent described in the classification of the study.

Insert Figure B.10~B.13

Figure B.10 ~ B.13 show the divided control structures of AVIC SANXIN Co., LTD. The principal is unique, but manager and agent vary with different control chains. All the managers excepting the Aviation Industry Corporation of China in Figure 3.18 could be the agents in other control chains. The managers and agents are not same and may change in different control chains. Their responsibilities, tasks, rights and power also vary with their role. The managers and agents may have similar responsibilities when operating the listed firms.

This part uses the Aviation Industry Corporation of China as a representative of managers and describes its development and responsibilities. The marketization of China aviation industry corporation includes four aspects (SASAC Website, 2018b). First one is the successful transition from a national ministry to a modern enterprise. During the 40 years after the founding of new China, the national ministries were in charge of the aviation industry. Until the establishment of the China aviation industry corporation in 1993, the management mode has been substantially changed. The "headquarter" of China aviation industry was transited from national ministry to industrial corporation, from government department to enterprise. After this, the China aviation industry continuously deepens the reform, innovates and develops, further integrates, restructures and transforms. The "headquarter" gradually becomes a real market main body. The Aviation industry as a wholly state-owned enterprise was the pilot unit of the construction of the board of directors. At the end of 2017, the Aviation industry was reformed as a limited liability company which has constructed the board of directors and special committees and established the standardized operation system of the board of directors

- management committee – managers. Most of its affiliated companies have reformed the company's system, strictly regulated the decisions -making process, perfected the relevant system and working mechanism, preliminary built up the corporate governance system to separate decisions of the board of directors and management of managers.

Second one is the shareholding system reform and exploration of listing. In the early 1990 s, the capital market was established in China. From then on, the aviation industry continuously reformed the shareholding system, explored the financing methods for listing, realized the transformation from closed military industry to the public company. The first stage is beginning from the non-aviation products. The invention of the watch was originated from aviation. The first share of China aviation industry also attached to the watch. China aviation industry corporation was founded in June 1993. At the same time, the aviation industry's first stock Shenzhen Feiyada (stock code: SZ000026) was listed on the Shenzhen stock exchange. The list of Feiyada provided a preliminary understanding of market-oriented reform for the aviation industry staffs. Since then, China aviation industry started the rapid reform through shareholding. The second stage is extending the shareholding system to the field of aviation products. In July 1999, approved by the state council, the China aviation industry corporation was divided into aviation group one and two. Aviation group one and two took turns to promote shareholding system reform. More than 11 companies in the aviation industry were listed. In August 2007, the company in our case, AVIC SANXIN Co., LTD was listed. The third stage is the listing of core military companies in the aviation industry. In November 2008, approved by the state council, China aviation group one and two were merger as the China aviation industry corporation. The new aviation industry corporation adjusted their subordinate units and formed more than 10 business areas. After that, the aviation industry fully and reasonably uses the platform of listed companies to integrate, employs the financing functions of listed companies and promotes the operation of capital. In the past 40 years, the aviation industry

completed more than 23 professional restructures and integrations by using the listed company as a platform, added more than RMB75 billion net capital to the listed company, built professional companies of aircraft, helicopter, avionics, aviation mechanic, automobile components, trade logistics etc.

Thirdly, the financing in capital market boosts the development of aviation business. For a long time, the aviation industry relies mainly on the investment from the central finance of military special engineering research, development, production and technical innovation. Enterprises lack the ability to generate capital for research and development to adapt to market variations. In contrast, the aviation enterprises in developed countries of European and American can obtain the long-term, stable, multiple-channel and timely outside funds through listing or introducing strategic investors. This mode helps the aviation enterprises develop effectively. On the account, the aviation industry needs to make full use of all kinds of social resources and attract investment on the premise of the guarantee of the core control by state. Over 40 years, the aviation industry has raised more than 59.4 billion yuan in the capital markets. The listed companies engaged in the aviation business financed more than RMB29.4 billion, and more than 70% of the funds was used for research and development. Aviation industry has greatly improved the ability of independent research and development through market financing. For example, in December 2017, the Shenyang Aircraft Corporation reversed merged the CAC Panther to realize listing and raised 1.7 billion yuan at the same time to invest in the development of new model airplane. The merger and funds solved the problem that the military production only relies on the national investment, widened the channels of funds and enhanced capability of Research and Development.

The last one is deepening the reform of state-owned enterprises. In the past 40 years, the aviation industry constantly implemented government's reforming strategies of state-owned enterprises. The Aviation industry in accordance with the deployment of state council and requirement of deepening the reform of state-owned enterprises on 22nd December 2013, formed a leading group comprised of the directors in the group to plan and organise the reforms of whole group at the top level. After research, the aviation industry chose the integration of military and civilian as the goal of the reform, issued the 'Decisions about the integration of national military and civilian' (hereinafter referred as the 'decisions'), and set the 'decisions' as the programmatic document of the reform in group. Therefore, the top level of the deepening reform in Aviation industry was formed. In the first half of 2018, the aviation industry through summarizing research, issued the '1+N documents system for the military and civilian integration' and '1+N plans for the military and civilian integration'. The aviation industry formed a framework with the 'decisions' as the top guiding principle and a number of special implementing plans as supplements. The framework is based on the group's actual situation, starts with the deployment of the state, determines the reforms in 11 key areas, and effectively enhance the systematicness, integrality and cooperativity of the reforms.

Through more than 20 years of capital operation, aviation industry is transited from a traditional closed military enterprise, gradually developed into a multinational corporation with strong competitiveness. At the same time, with the aid of capital strength, the aviation industry actively uses the mixed ownership reform as the breakthrough point, introduces strategic investors, implements the employee shareholding and promote restructuring and listing. The endogenous power and vitality of the enterprise are positively enhanced. The case of China aviation industry corporation presents a comprehensive explanation for the top-bottom structure of Chinese list firms. The aviation industry not only bears the responsibilities to

implement the government policies, also uses the listed firms to raise funds in research and development.

B.3 Baoding Swan Co. Ltd.

Insert Figure B.14

Figure B.14 presents the control structure of Baoding Swan Co. Ltd. Squares on the right show the types of principal, manager and agent described in the classification of the thesis. Baoding Swan Co. Ltd referred as BDTE belongs to the cellulose and fiber industry. Its main products include filament yarn, spandex silk and pulp. The principal of Baoding Swan Co. Ltd is China Hi-Tech Group Corporation which is also the largest shareholder in the listed firm. The second largest shareholder is Hi-Tech Fiber Group Corporation which is the wholly-owned subsidiary of China Hi-Tech Group Corporation. Both of the largest and second shareholders are managers and agents. The principal in this case directly holds the shares in the listed firms in China. But most of the principals, also as the ultimate controller, obtain the control rights through the pyramid structure.

The controllers in different ownership structure have different objectives to maximize self-interests. The ownership structures are different in countries across the world. Dispersed ownership is typical in listed firms of the America and UK, and equity concentration also exists in the rest of Europe and east Asia countries. Some enterprises only have one large shareholder, while multiple large shareholders may coexist in other enterprises. The ultimate controllers are common in the listed companies of east Asian countries. They obtain the control rights through the pyramid structure, cross-shareholdings, dual class shareholding and other methods. The control structure could be divided into the following four types: First, the scattered equity and managers control; Second, the equity concentration and large shareholder

control; Third, large shareholders coexistence and control balances; Last, enterprise group with ultimate control. If managers or controlling shareholders in the companies pursue private benefits, they will damage the interests of the minor shareholders.

Based on Zhou and Lian's (2016) three-level hierarchical organisation model, I develop a control structure model to explain the control mode of listed firms in China. The first level (principal) is the administration of the state-owned asset, such as government, SASAC, asset management bureau etc. They mainly perform the assets administrative functions. Second level (manager) is the management and operation of the state-owned asset, such as the state-owned capital investment and operation companies. They help the government agencies to raise the capital for investment and exercise part of the shareholders' rights entitled by the principal. Third level (agent) is the direct controlling shareholders of the listed firms. They are the large shareholders in the listed firm and are engaged in the professional state-owned assets/capital operation relying on the market mechanism. They are responsible for increasing state-owned assets value and generating profits for the principal.

The control structure model brings new perspectives about the ownership structure in the listed firms of China. There may exist one or more companies between the ultimate controller and direct controlling shareholder. The increase of the number of the mid-tier companies may either damage or benefit the enterprise efficiency. With help of the control structures of the listed firms, I summarize three major methods through which the ultimate controllers obtain control rights: the ultimate controller is the upper-level entity of largest shareholders and obtains control rights through control structure; the ultimate controller is the upper-level entity of non-largest shareholders and obtains control rights through control structure; the ultimate controller is the upper-level entity of both largest and non-largest shareholders and obtains

control rights through control structure. The control methods imply that the largest shareholders may not be crucial to the operation of listed firms and the listed firms with large shareholders holding significant shares could still be widely held. The control structure model provides a theoretical basis for the thesis.

Figure B.1 Three-level Hierarchical Organisation Model of Chinese Government Governance

The figure shows the three-level hierarchical organisation model. The squares on the left represent the central government, middle government and grassroots government from top to bottom. The squares on the right represent the principal, manager and agent from top to bottom. The central government acting as principal have final authority to formulate policy, design organisation as well as setting incentive, performance evaluation; The central government authorizes the middle government (manager) to supervise the policy implementation of the grassroots governments; The grassroots government as the agent have the responsibility to implement the top-down instructions and policies.

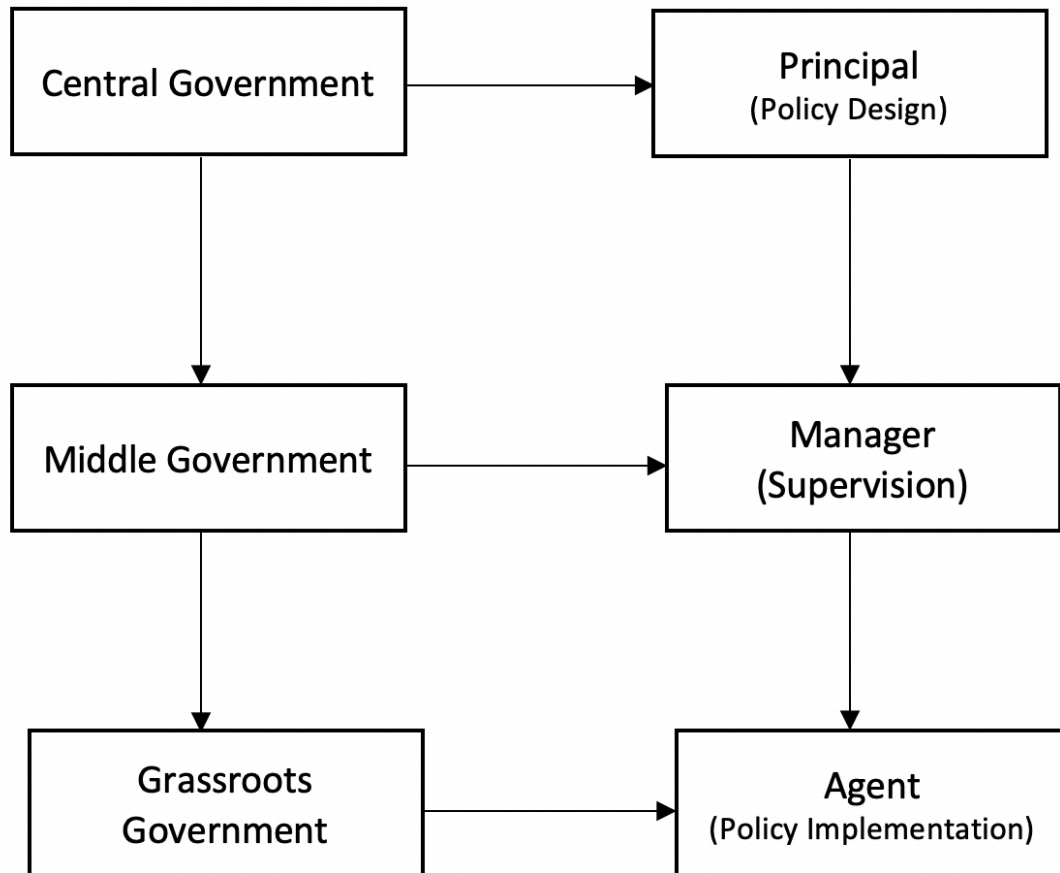


Figure B.2 Control Structure of Listed Firm Shenzhen Overseas Chinese Town Co., Ltd

This figure shows the control structure of HQCA in 2011 which is disclosed in the annual report. The largest shareholder is Overseas Chinese Town Enterprise co. which is wholly owned by the central SASAC. The names of the shareholders at the Rank Two, Three, Four and Five are also shown in the figure, with the proportion of shares held by them.

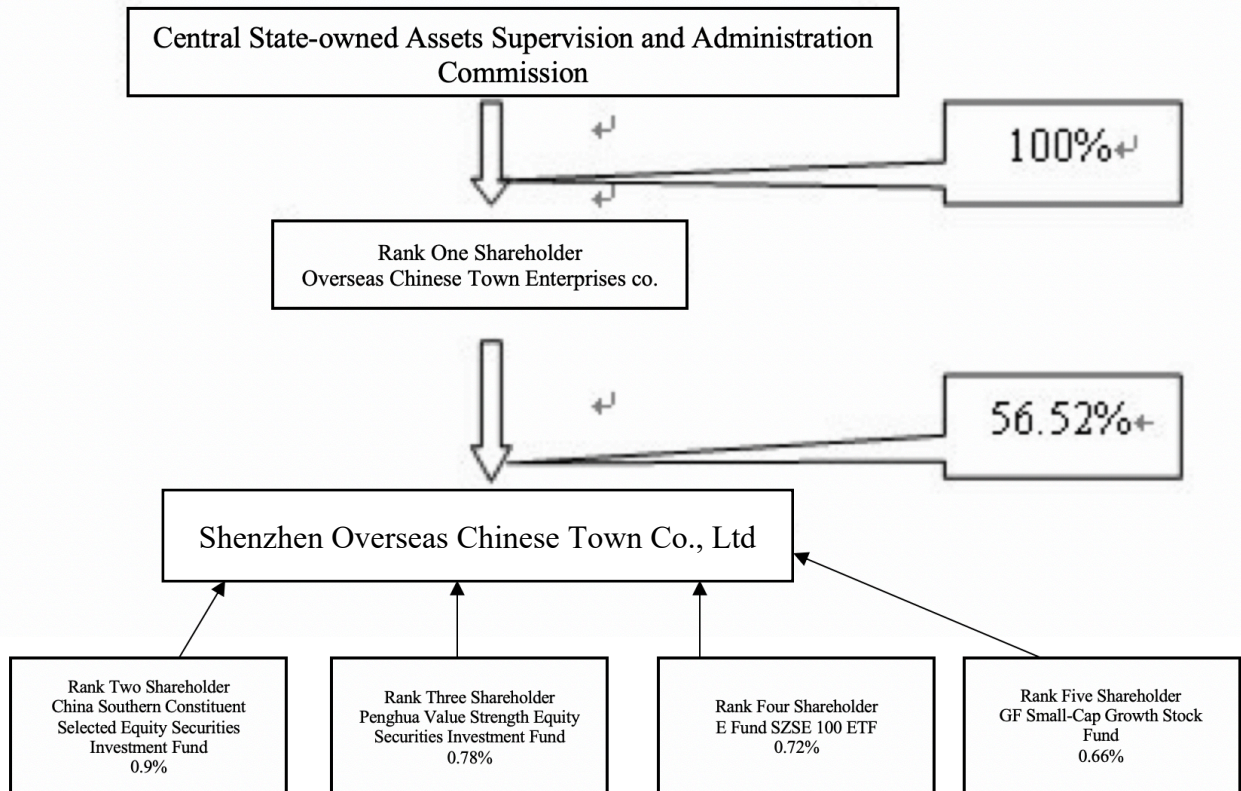


Figure B.3 Control Structure of Listed Firm AVIC SANXIN Co., LTD.

This figure shows the control structure of ZHSX in 2010 which is disclosed in the annual report. The names of the shareholders are also shown in the figure, with the proportion of shares held by them. The largest shareholder is a nature person with a shareholding rate of 19.68%. According to the annual report, the second largest shareholder - Shenzhen Guihang Industry Co., Ltd. is the subsidiary of the third largest shareholder - China National Guizhou Aviation Industry (Group) Co., Ltd. The China National Guizhou Aviation Industry (Group) Co., Ltd. is the solely funded subsidiary of the seventh shareholder - AVIC General Airplane Co., Ltd. The listed firm is ultimately controlled by the Central SASAC.

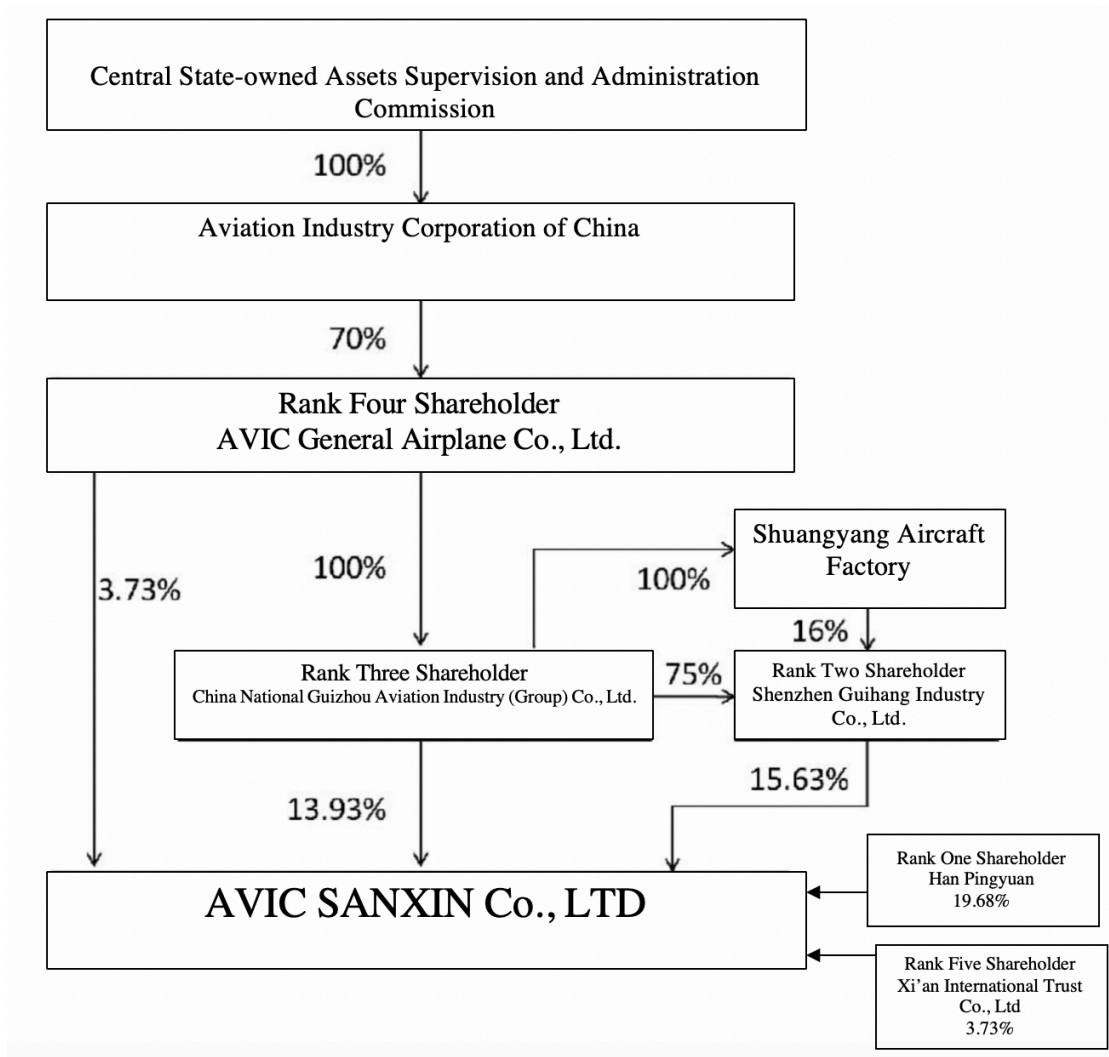


Figure B.4 Control Structure of Listed Firm Shenzhen Properties and Resources Development (Group) Ltd.

This figure shows the control structure of SWYA in 2016 which is disclosed in the annual report. The names of the shareholders are also shown in the figure, with the proportion of shares held by them. Its ultimate controller in 2016 is the Shenzhen SASAC (State-owned Assets Supervision and Administration Commission) which is a government agency with the listed firm's voting rights 63.82%. The Shenzhen SASAC obtain control rights through two layers. The first layer comprises two companies: Shenzhen Construction Investment Holding Company with a shareholding rate of 54.33% and Shenzhen Investment Management Company with a shareholding rate of 9.49%. The Shenzhen Investment Holding Company is the second layer in the control structure and has 63.82% voting rights of SWYA. The Shenzhen SASAC as a government department has the responsibility to manage the Shenzhen Investment Holding Company and has 100% control over the company. Thus, the ultimate controller of SWYA is Shenzhen SASAC.

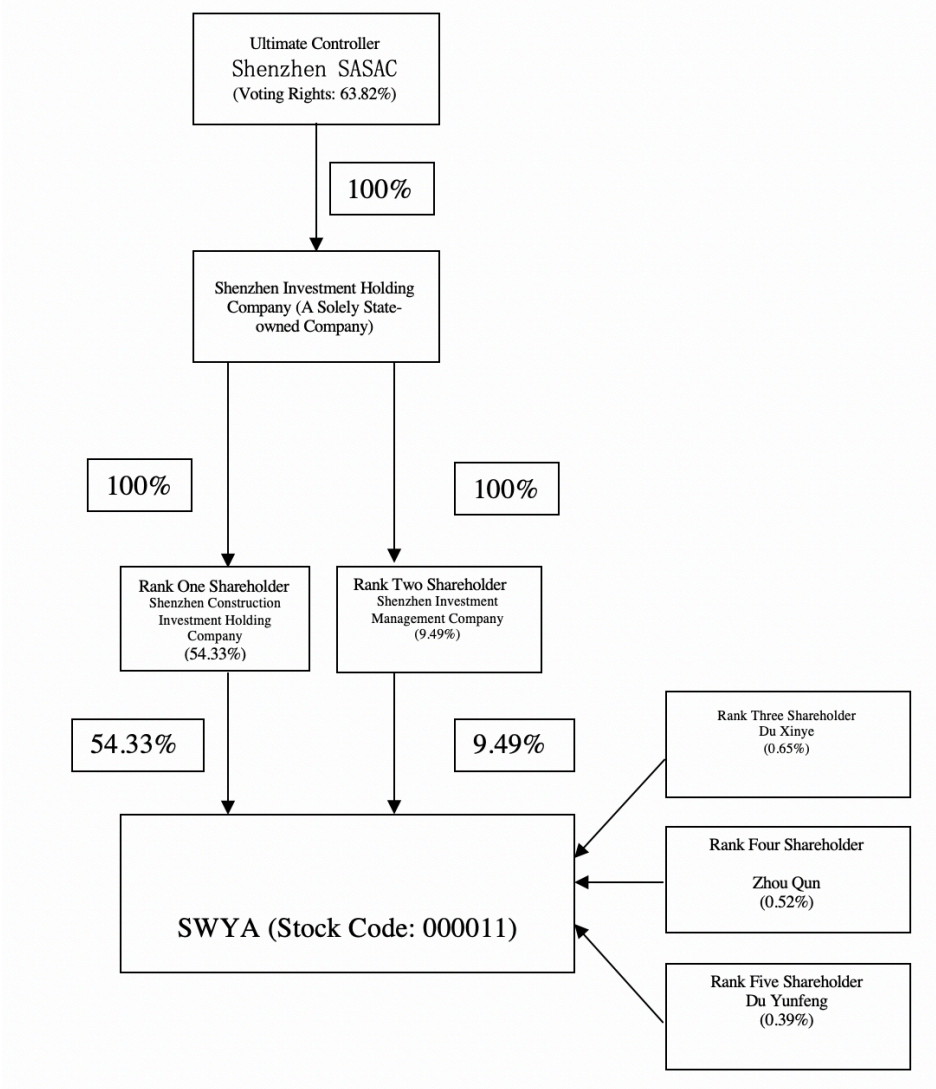


Figure B.5 Control Structure of Listed Firm SWYA

This figure shows the control structure of SWYA in 2016 which is disclosed in the annual report. Its ultimate controller in 2016 is the Shenzhen SASAC (State-owned Assets Supervision and Administration Commission) which is a government agency with cash flow rights 63.82% and voting rights 63.82%. The Shenzhen SASAC obtain control rights through two hierarchies.

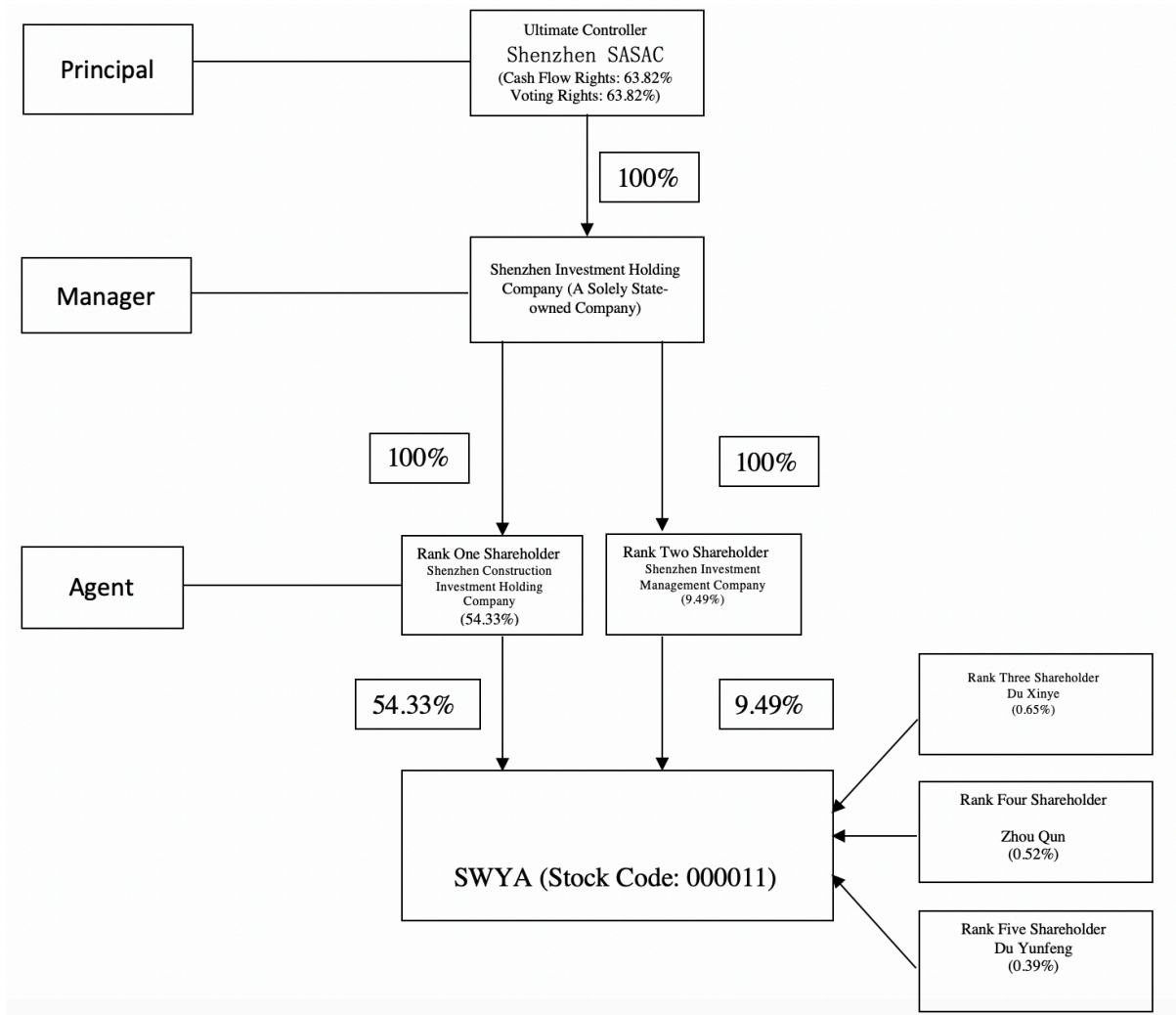


Figure B.6 Control Structure of the Largest Shareholder in Listed Firm SWYA

This figure shows the one of the control chains in the control structure of SWYA in 2016 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

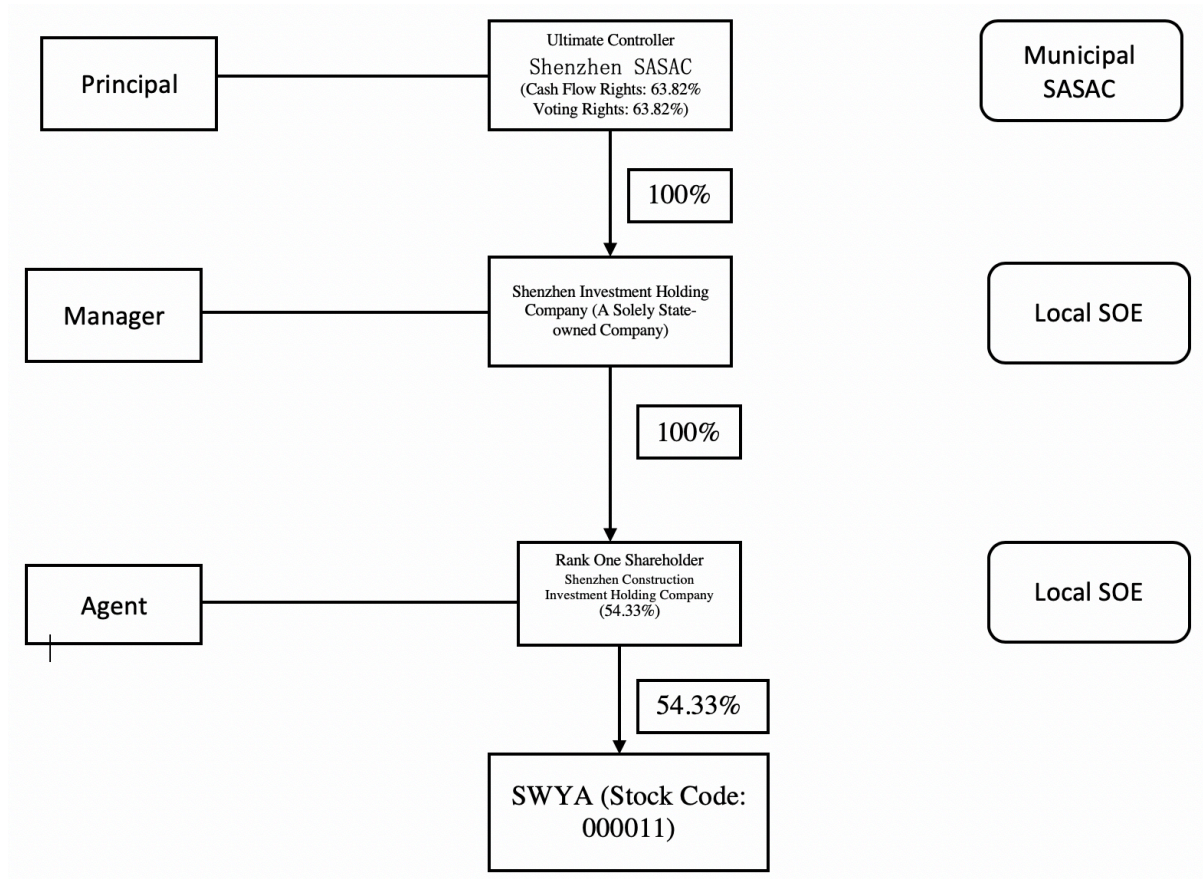


Figure B.7 Control Structure of the Second Largest Shareholder in Listed Firm SWYA

This figure shows the other one of the control chains in the control structure of SWYA in 2016 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

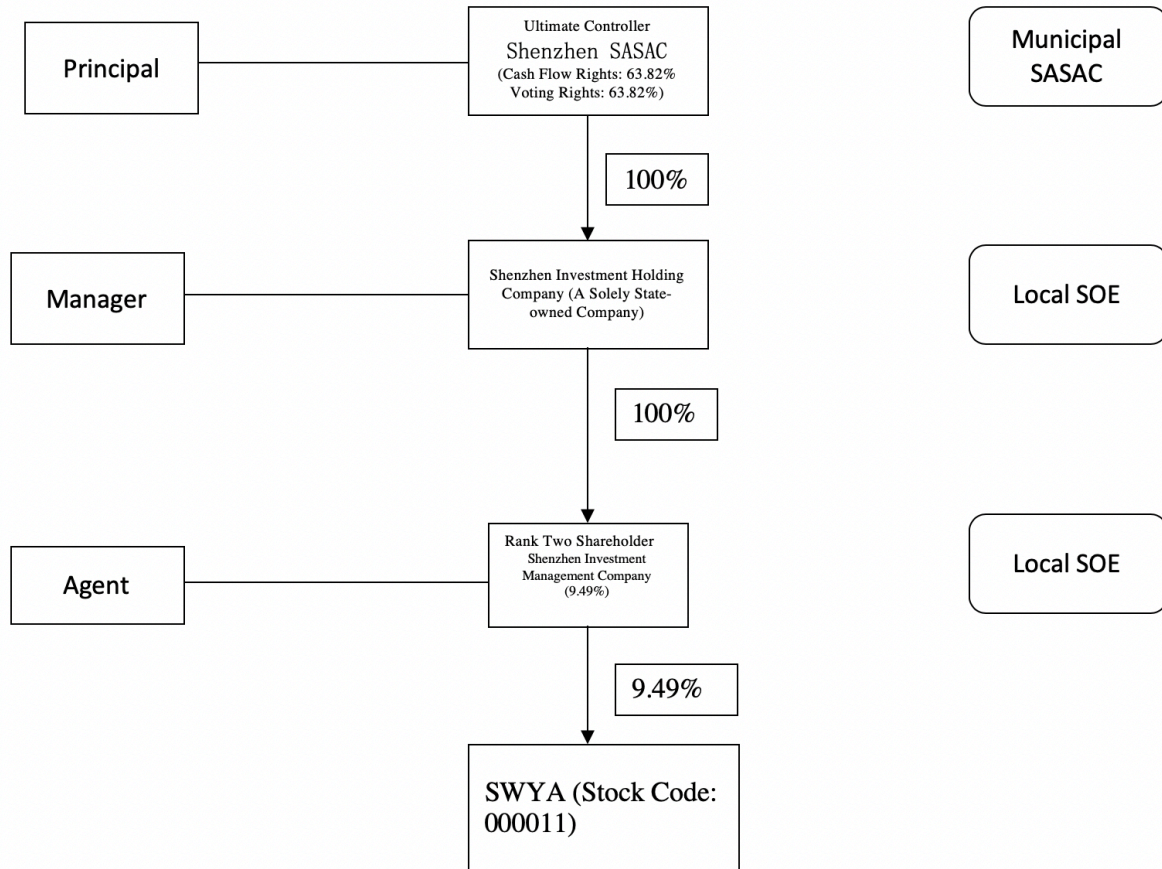


Figure B.8 Personnel Relations in the Control Structure in Listed Firm SWYA

This figure shows the personnels in the control structure of listed firm SWYA. The director of Shenzhen SASAC (principal) serves as the chairman of the board of directors in the Shenzhen Investment Holding Company (manager). The executives and supervisors of SWYA also take the positions as secretaries or undersecretaries of different departments in Shenzhen Investment Holding Company. The chairman of the board of directors in SWYA was the assistant manager of Shenzhen Investment Holding Company.

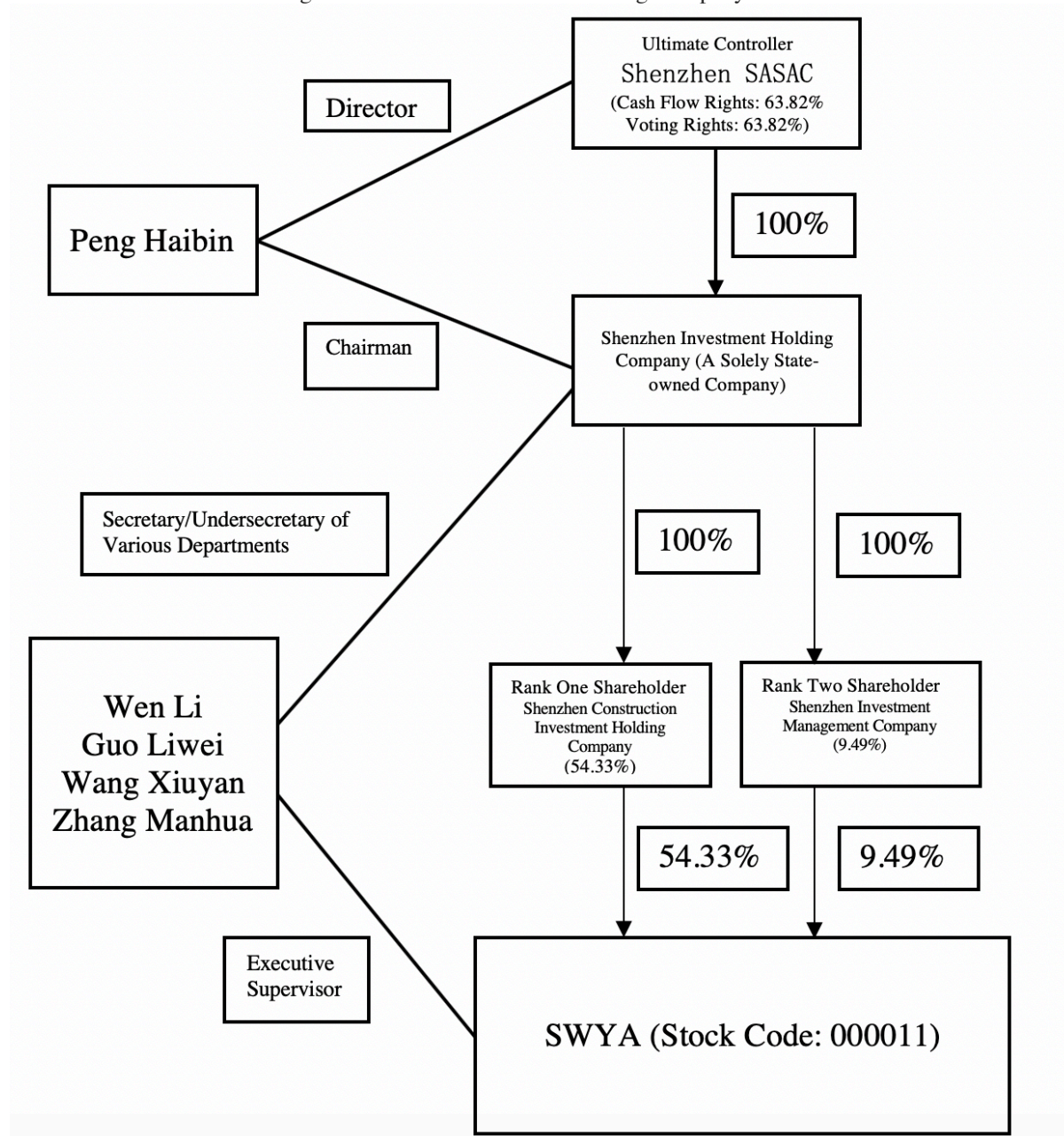


Figure B.9 Control Structure of AVIC SANXIN Co., LTD

This figure presents the control structure of the listed firm AVIC SANXIN Co., LTD in 2010. The principal in the structure is the Central SASAC, but there are more than one manager and agent of the listed firms.

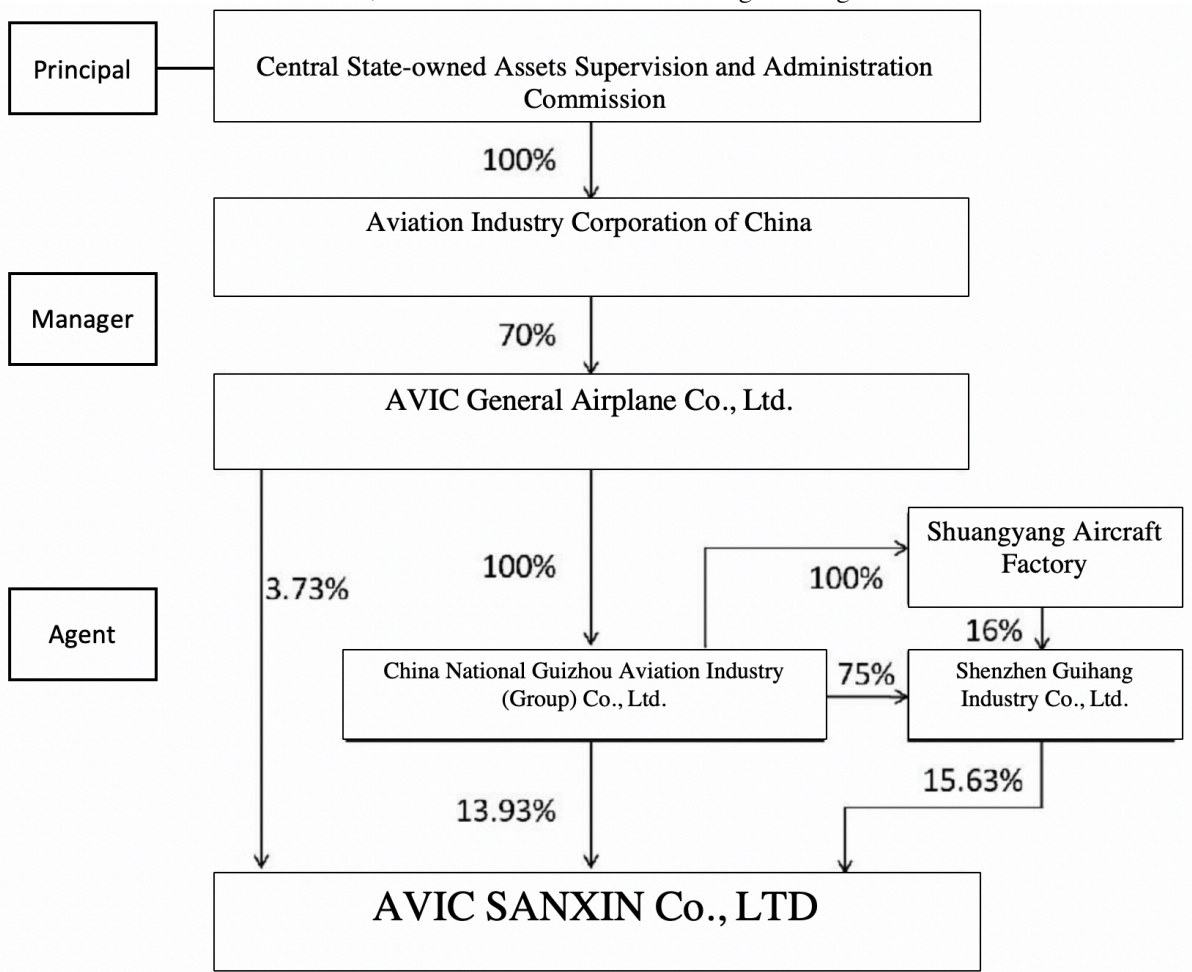


Figure B.10 Divided Control Structure A of AVIC SANXIN Co., LTD

This figure shows the one of the control chains in the control structure of ZHSX in 2010 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

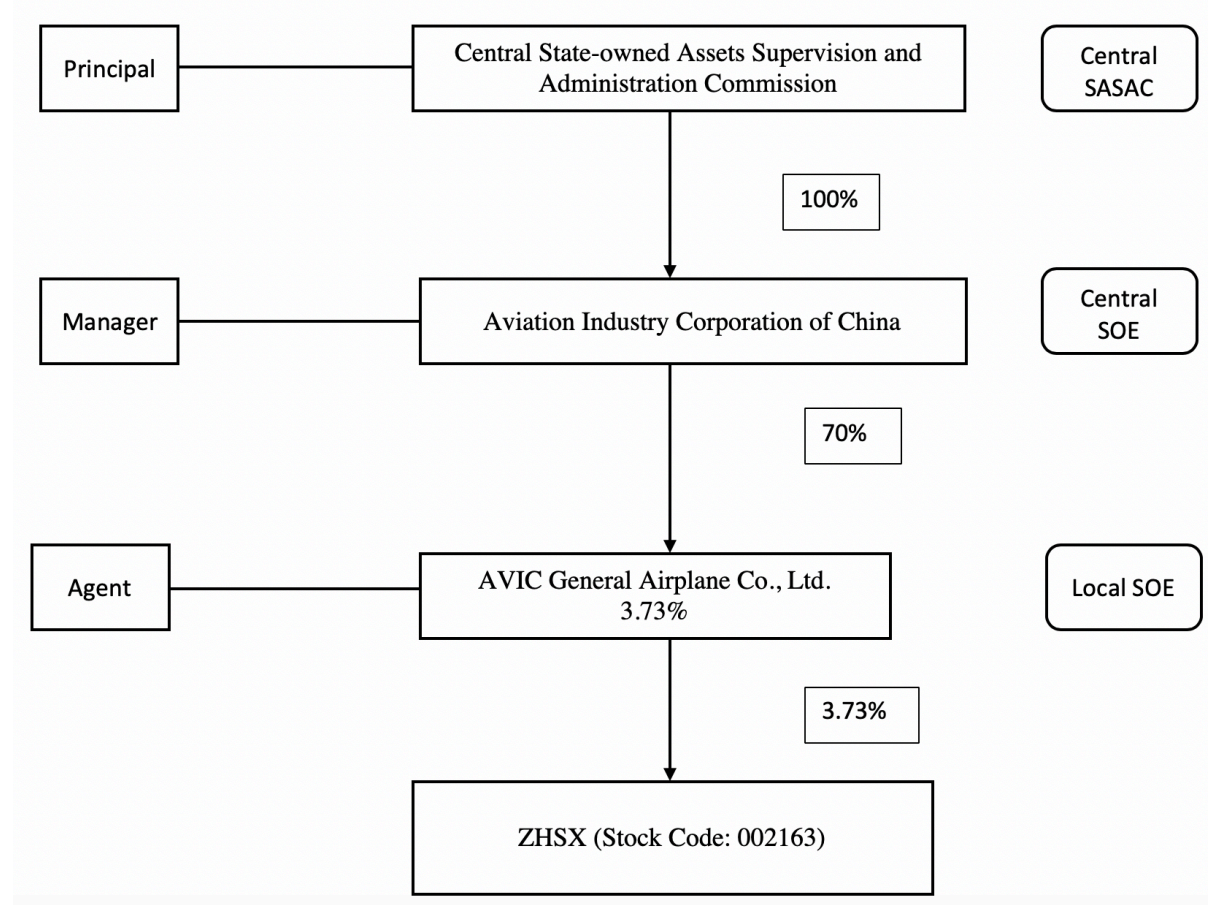


Figure B.11 Divided Control Structure B of AVIC SANXIN Co., LTD

This figure shows the one of the control chains in the control structure of ZHSX in 2010 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

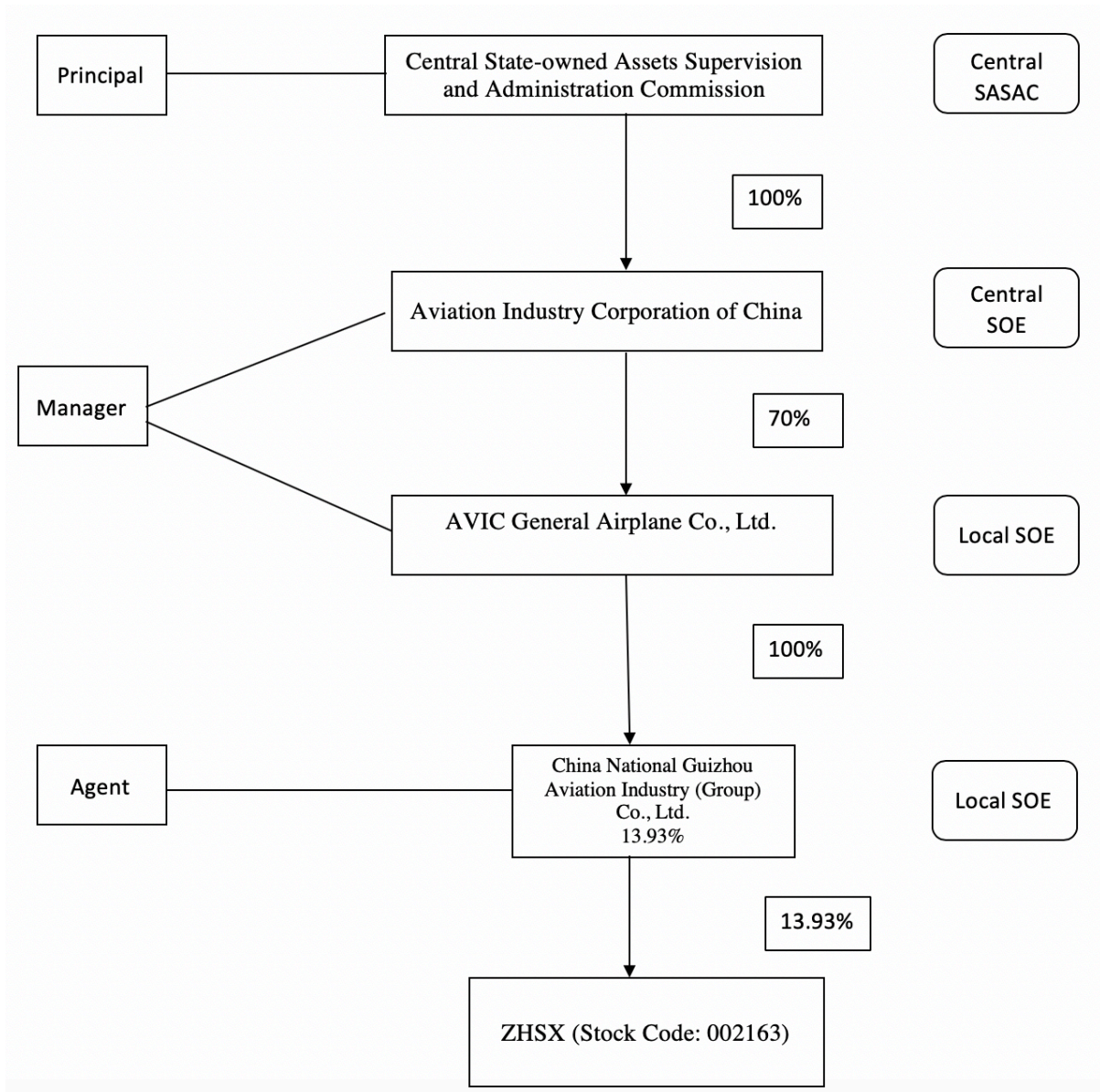


Figure B.12 Divided Control Structure C of AVIC SANXIN Co., LTD

This figure shows the one of the control chains in the control structure of ZHSX in 2010 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

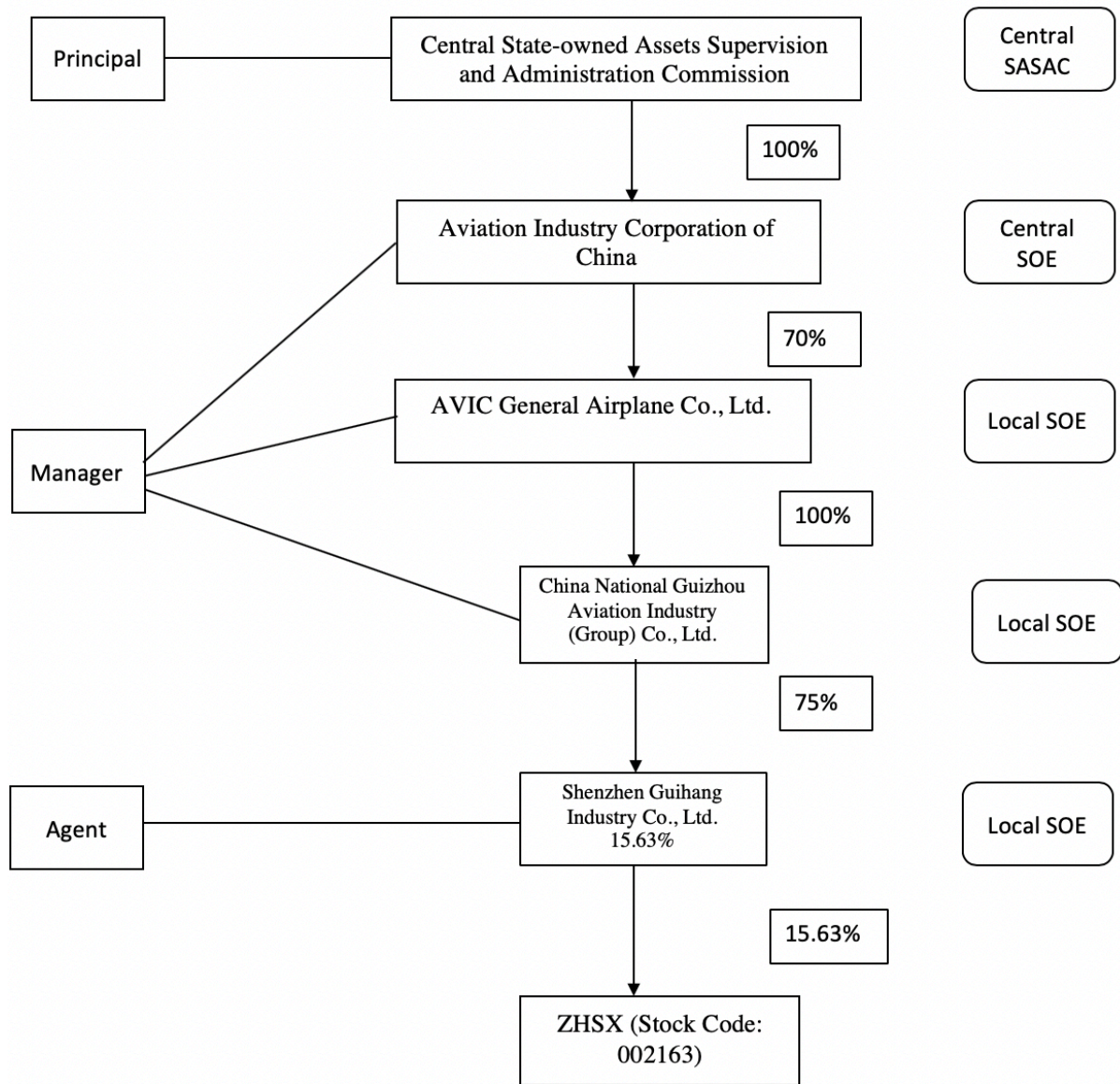


Figure B.13 Divided Control Structure D of AVIC SANXIN Co., LTD

This figure shows the one of the control chains in the control structure of ZHSX in 2010 which is disclosed in the annual report. Right-side squares show the types of principal, manager and agent described in the classification of the study.

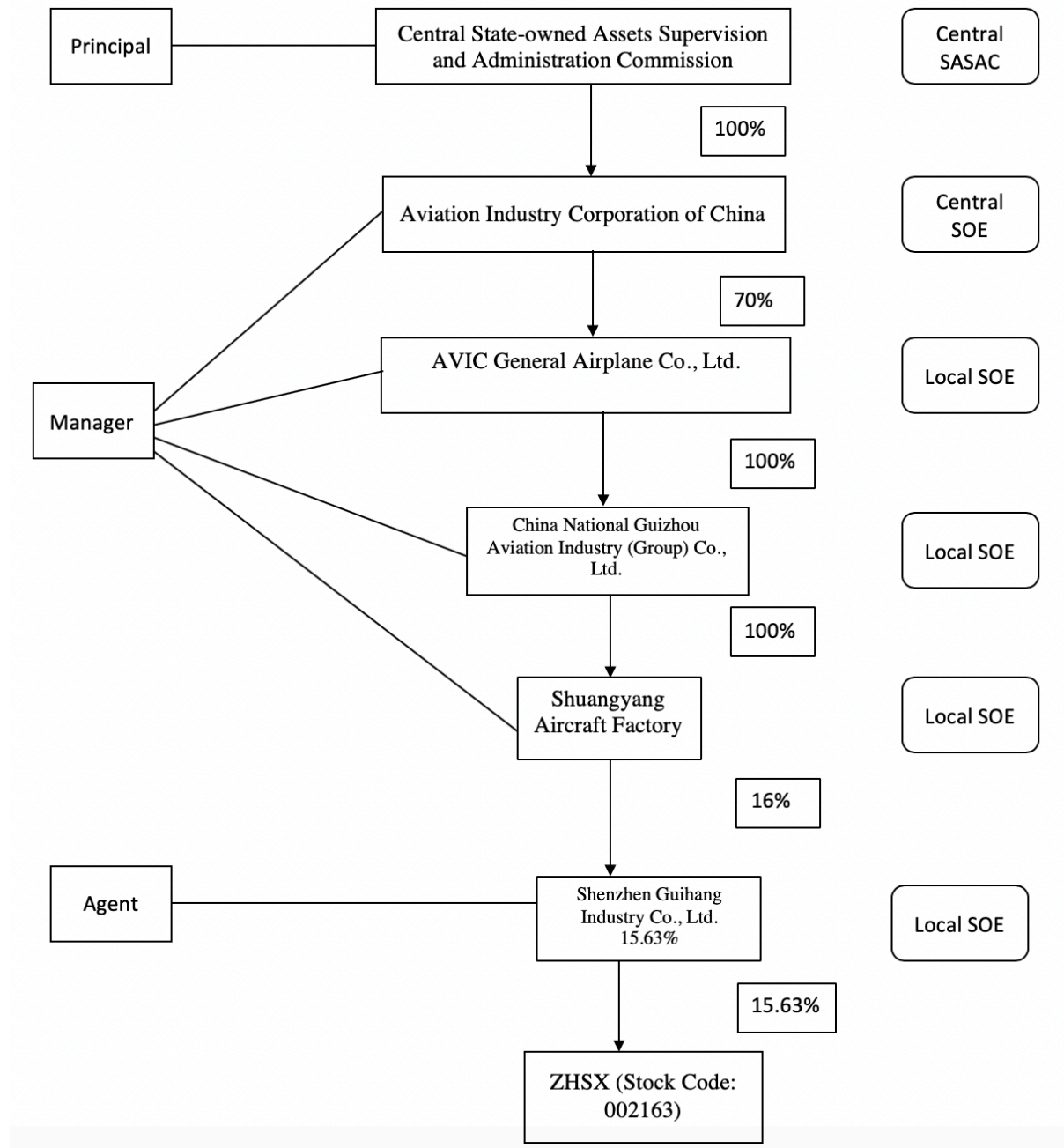
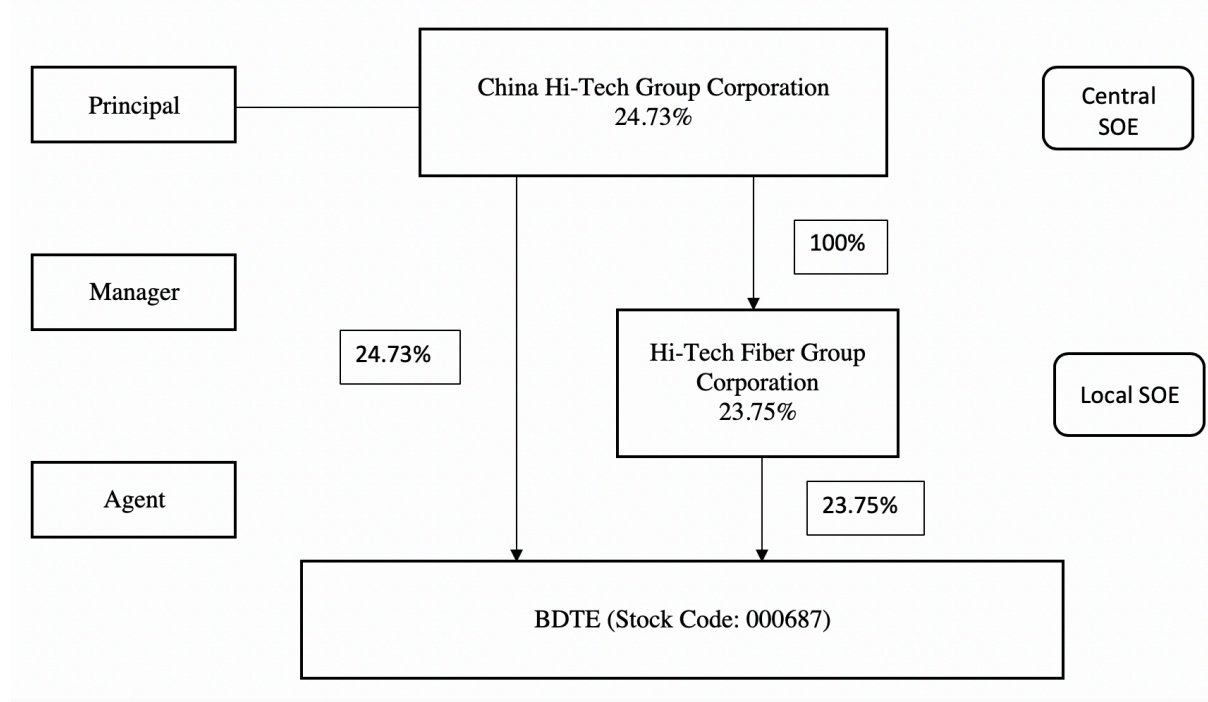


Figure B.14 Control Structure of Baoding Swan Co. Ltd.

This figure presents the control structure of Baoding Swan Co. Ltd. Squares below the shareholders show the types of principal, manager and agent described in the classification of the study. Baoding Swan Co. Ltd referred as BDTE belongs to the cellulose and fiber industry. Its main products include filament yarn, spandex silk and pulp. The principal of Baoding Swan Co. Ltd is China Hi-Tech Group Corporation which is also the largest shareholder in the listed firm. The second largest shareholder is Hi-Tech Fiber Group Corporation which is the wholly-owned subsidiary of China Hi-Tech Group Corporation.



Appendix C. Policies for Central, Provincial and Municipal SOEs

This part presents the policies for the thesis. Part 1 shows the government intends to distinguish the functions of SOEs and regulate according to the classification. Part 2 shows the central enterprises has to perform social responsibility which may lead to low profitability. Part 3 shows the hierarchy of SASACs is clearly regulated. High-level SASAC must guide and supervise low-level SASAC which lead to different performances. Part 4 shows provincial SASAC control the SOEs more tightly than municipal SASAC. Part 5 shows provincial government provides more financial support than the municipal government.

1 Classification of State-owned Enterprises by Functions

On December 7, agreed to by the state council, the SASAC, the ministry of finance, national development and reform commission jointly issued "the guidance and opinion about definition and classification of state-owned enterprise functions" ¹(hereinafter referred to as "opinions"). The "opinion" points out that definition and classification of state-owned enterprise functions are the important contents to deepen the reform of state-owned enterprises under the new situation, improve the governance structure of state-owned enterprises, optimize the layout of national capital, and strengthen the supervision of state-owned assets. First, the classification can promote the state-owned enterprise reform. Defining different functions and scientific classification of state-owned enterprises is the base deepening the reform of state-owned enterprises, improving the modern enterprise system and developing the mixed ownership economy. Generalization will lead to pertinence and reduce the reform effects. Definition and classification of state-owned enterprises by function are beneficial to further promote the reforms based on the characteristics of different types of enterprises. Secondly, the

¹ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c4258150/content.html> [Accessed 28th, March 2018].

classification can promote scientific development of state-owned enterprises. Due to historical and realistic reasons, the state-owned enterprises bear the multiple responsibilities and missions. The "profit mission" and "commonweal mission" coexist in many enterprises. Some missions which should be fulfilled by the government or by purchasing service were borne by the enterprises. Some important decisions which should be independently decided by the enterprises are still examined and approved by the government. These actions hindered the development and improvement of systems and mechanisms of the marketization of enterprises. Third, the classification is beneficial to optimizing the layout of state-owned economy structure. The function orientation of the state-owned enterprises is not clear. Definition and classification of state-owned enterprises by function can further clarify the invested direction of the state-owned capital, optimize allocation of state-owned capital, enhance the quality and efficiency of state-owned economy. Forth, the classification can strengthen the supervision of state-owned assets. There are no function definition and classification of state-owned enterprises, the "one size fits all" phenomenon still exists in the regulations, supervision contents, regulatory requirements and regulatory modes. Definition and classification of state-owned enterprises by function could strengthen the scientificity, pertinence and effectiveness of the state-owned assets supervision.

Agreed to by the state council, the SASAC and ministry of finance jointly issued "Implementation plans to improve the appraisal of function and classification of central enterprises"² (hereinafter referred to as "implementation plan"). The "implementation plan" has explicitly regulated the operating responsibilities of different types of state-owned enterprises and determined the differentiation of the inspection guide and content based on the firms'

² Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588035/n2588320/n2588335/c4258351/content.html>[Accessed 28th, March 2018].

functions and characteristics. According to "implementation plan", the central enterprises will be divided into three categories. The first category includes the central enterprises in fully competitive industry and business. The "implementation" enhances the vitality of state-owned economy, amplify the function of state-owned capital, maintain and increase the value of state-owned capital. The second category includes the central enterprises in important industries and key areas of national security and national economy. On the basis of ensuring reasonable return and state-owned capital value, the government should strengthen the assessment of strategic industries which safeguard national security and national economic operation. The third category includes the central enterprises of public welfare. The "implementation" supports enterprises to safeguard the people's livelihood, serve the society, provide better public products and services.

2 Responsibility of Central Enterprises

In recent years, the state grid corporation, petrochina, cosco group released a batch of central enterprise social responsibility reports or sustainable development reports³. Central enterprises have played a positive role in the implementation of national macroeconomic regulation and control policy. Petroleum and petrochemical enterprises strengthen management, reduce costs and ensure the stability of the domestic refined oil supply when the prices of domestic processed oil drop away from the prices of import oil. Coal enterprises abide by contracts, guarantee quality and guarantee quality when the coal is in short supply and prices rose sharply.

³ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588035/n2588320/n2588340/c4426930/content.html> [Accessed 28th, March 2018].

3 Hierarchy of SASACs

Premier Jiabao Wen emphasized that the reform of local state-owned assets management system must be in accordance with the central unified deployment, from top to bottom, proceed orderly on the Fifth Session of the Sixteenth Central Committee of the CPC (Communist Party of China)⁴. Higher-level SASAC must guide and supervise the lower-level SASAC in accordance with the law. Strengthening the guides and supervision of local state-owned assets is the effective measure to guarantee the implementation of the regulations and policies. However, the policies and regulations are not sufficiently carried out in some areas. Some sponsor duties need to be further standardized of some local SASACs. The guide and supervision systems are divided into two levels. First one is the guide and supervision between the central SASAC and local SASACs at all levels. The central SASAC implements unified guidance and supervision to the local state-owned assets according to laws, administrative regulations and authorisation by the state council. The main method to supervise is to develop and execute assets supervision regulations. The regulations have general norms guiding effects on local SASACs at all levels. The second one is the guide and supervision between high-level and low-level local SASACs. The provincial SASAC has the responsibility to guide and supervise the management of state-owned assets at municipal or lower levels.

4 Tighter Control by the Provincial SASAC

The SASAC of Zhejiang Province has set financial controller and full-time supervisors for the provincial state-owned enterprises since 2002⁵. The full-time supervisors are the representatives of provincial SASAC. The objectives of the supervision jobs are the provincial enterprises and their capital operation and accounting. The supervisions include daily

⁴ Source: SASAC Website. [Online] Available at: http://www.zjsgzw.gov.cn/art/2013/3/22/art_569_28.html
http://www.mof.gov.cn/zhengwuxinxi/caizhengwengao/caizhengbuwengao2008/caizhengbuwengao20081/200805/t20080519_29015.html[Accessed 28th, March 2018].

⁵ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588035/n2588320/n2588340/c4426972/content.html>[Accessed 28th, March 2018].

supervision, focal supervision and internal supervision. The daily supervisions refer to the supervisions of investment projects and capital operation. The focal supervisions comprise the supervisions of decision making and accounting. The internal supervisions focus on the supervisions of the internal controlling regulations which are the financial management, long-term investment management and other state-owned assets operating activities. The enterprise must report the following activities to the full-time supervisors: property rights transfer, foreign investment, loans, mortgages, guarantees, large amount of cash flow, merger, lease, operating activities reports, personnel changes, and economic litigation et al. Through the mechanism of financial controller and full-time supervisors, provincial SASAC has tighter control of the enterprises than the municipal SASAC.

5 Regulations in the Management of State-owned Assets Profits

The central SASAC and Zhejiang provincial SASAC have different regulation in the management of state-owned assets profits. The central SASAC regulates that the hand-in proportion of annual net profit of enterprises solely funded by the state is 10%/5%/delay/exempt based on different industries. The dividend of state investors in state holding enterprises and state shareholding enterprises is determined by the board of shareholders⁶. The Zhejiang provincial SASAC regulates that the hand-in proportion of annual net profit of enterprises solely funded by the state is 100%/10%/5%/delay/exempt based on different industries. All the state investors' dividends determined by the board of investors must be handed over to the government. (Zhejiang Provincial SASAC Website) In fact, most state-owned enterprises have lower profitability than private and foreign enterprises. Excepting

⁶ Source: SASAC Website. [Online] Available at: http://www.zjsgzw.gov.cn/art/2012/2/7/art_569_81.html, http://www.zjsgzw.gov.cn/art/2014/10/31/art_349_7.html [Accessed 28th, March 2018].

the operating expenses, there is little left for the investment and product innovation which could further lead to low profitability.

6 Financial Support of Provincial and Municipal SASACs

The following tables show the Annual Income and Expense Reports of Zhejiang Province and Ningbo City⁷. The tables present that the Fiscal Appropriation of Zhejiang Province is more than double that of Ningbo City. The expenses in Social Insurance and Employment of Zhejiang Province are also more than that of Ningbo City. The provincial SASAC provides stronger financial support for the enterprises than the municipal SASAC. The social responsibility leads to the loss of SOEs. For example, central enterprises enforced national minimum price to purchase, sell, auction and other controlling policy to maintain the stability of the grain market in the global food crisis. The petroleum and petrochemical enterprises actively support the national macroeconomic regulation and control to ensure the stability of the domestic oil supply and maintain China's fuel prices relatively stable. The refining plate of three central petroleum and petrochemical enterprises suffered a loss of 165.2 billion yuan due to the social welfare policies, of which the state provided financial subsidies about 63.2 billion yuan and companies used their own capital subsidy of more than 100 billion yuan. Moreover, the government regulates the dispose of SOEs' profits. The SOEs need to hand over 100%/10%/5%/None of their profits to the government according to different industries. Some of the SOEs have very low profitability or even suffer loss. Excepting the operating expense, some enterprises barely have capital for investment and research which could further lead to low profitability. The SOEs should have low profitability. Moreover, the financial support decreases with the administrative level. High-level enterprises can receive more financial relief. SOEs at different levels are supposed to have different performances.

⁷ Source: SASAC Website. [Online] Available at: http://zfxx.ningbo.gov.cn/art/2015/3/11/art_2490_722309.html [Accessed 28th, March 2018].

Table C.1 Zhejiang Province SASAC Annual Income and Expense Report

(Unit: 10 thousand RMB)

The table reports the annual income and expense of Zhejiang province SASAC. The income is shown in the first two columns. The expense is shown in the last two columns.

Income		Expense	
Item	Amount	Item	Amount
Fiscal Appropriation	2962.04	1. Social Insurance and Employment	
Special Funds		Retire in Administrative Institution	62.75
Undertaking Revenue		2. Medical Treatments and Public Health	
Operating Revenue		Medical Service in Administrative Institution	37.15
Other Revenue	536.31	Medical Service in Public Institution	17.3
		3. Supervision and Management of State-owned Assets	
		Administrative Operation	1381
		General Public Administrative Affairs	982.95
		Other Expense	888.68
		4. Housing Reform	
		Housing Funds	107.91
		Housing Purchase Subsidies	31.1
Total Income this year	3498.36	Total Expense this year	3508.84
Surplus from last year	2095.07	Surplus for next year	2084.57
Total Income	5593.42	Total Expense	5593.42

Table C.2 Ningbo City SASAC Annual Income and Expense Report

(Unit: 10 thousand RMB)

The table reports the annual income and expense of Ningbo city SASAC. The income is shown in the first two columns. The expense is shown in the last two columns.

	Income			Expense	
Item	Amount		Item	Amount	
Fiscal Appropriation	1397.77		1. Social Insurance and Employment	41.54	
Special Funds			2. Medical Treatments and Public Health	10.53	
Undertaking Revenue			3. Supervision and Management of State-owned Assets	1929.1	
Operating Revenue			4. Housing Reform	98.61	
Other Revenue	831.1				
Total Income this year	2228.87		Total Expense this year	2079.78	
Surplus from last year	268.01		Surplus for next year	417.1	
Total Income	2496.88		Total Expense	2496.88	

Appendix D. Functions of SASAC

The SASAC as a vital governmental organ has the responsibility to supervise and operate state-owned assets. This part will introduce the functions of SASAC in capital operation, SOEs reform, social responsibility, property management, international cooperation, appraisal and distribution, supervision and administrative organs construction. The functions not only specify the motivation of SASAC when operating state-owned assets, also imply the performances of SOEs under the supervision of SASAC.

1 Capital Operation⁸

Since the approval of the state-owned assets management budget system by the state council in 2007, the SASAC actively carry out the work on establishing and perfecting the state-owned assets management budget working mechanism. As results, the construction of state-owned assets management budget system has achieved a progress stage. The daily management work was further standardized, and the central enterprise state-owned assets management budget system was preliminary established. SASAC will be in accordance with the requirements of the National People's Congress and the state council, further improve the system of state-owned assets management budget system, strengthen the management of budgetary revenues and expenditures, strengthen the budget implementation supervision, centralize the state assets in the key areas and advantaged enterprises which are related to national economy and security, vigorously promote the reform and development of enterprises and the revitalization of key industries, guide the central enterprises to speed up the clearance of noncore and inefficient assets, consolidate and upgrade the main industrial advantages, enhance the vitality, control

⁸ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588929/c4297280/content.html>, <http://www.sasac.gov.cn/n2588030/n2588929/c4297260/content.html>, <http://www.sasac.gov.cn/n2588030/n2588929/c4297238/content.html>, <http://www.sasac.gov.cn/n2588030/n2588929/c7808616/content.html> [Accessed 25th, March 2018].

and influence of state-owned economy. (SASAC website) In 2009, the state council approved the state-owned assets management budget of 87.36 billion yuan, among them: 7.5 billion yuan (about 8.6%) was spent on the complement of the central enterprise related to the national economy, people's livelihood and national security, 13.96 billion yuan (including 5.07 billion yuan in appropriations expenditure in the previous year, accounting for 16%) used to support post-earthquake recovery and reconstruction of the central enterprises suffering losses in the Wenchuan earthquake, 5.9 billion yuan (about 6.7%) on industry layout and structural adjustment of the central enterprises, and 60 billion yuan (about 68.7%) used on restructuring reform of the telecom. In 2009, the implementation of state-owned assets management budget played a positive role in the Wenchuan earthquake reconstruction, enhancing the ability of the central enterprises to tackle the financial crisis, guiding the central enterprises to intensify restructuring, speeding up the readjustment of distribution and structure of central enterprises and cultivating 80-100 of enterprises with the international competitiveness.

On 21st and 22nd September in 2011, SASAC convened seminars and training courses of the state-owned assets management budget system. The deputy director of SASAC, Jianmin, pointed out that the national state-owned assets management budget system on a trial basis for the past five years had outstanding achievements. The system played a significant role on promoting the healthy development of state-owned enterprises. Central enterprises assets budget work was steadily pushed forward, building the system of institutional framework, exploring a more effective working mechanism, actively handing in the returns of state-owned assets, effectively playing the leading role in guidance. The local SASACs also achieved positive progresses. They had been clear about the assets budget mechanism, set up an assets budget management system, actively explored a variety of effective work operation modes.

They also had been clear about the collection scope of capital gains, promoting the state-owned economic layout and structure adjustment.

The economic and policy environment for state-owned enterprise reform and development has suffered great changes. Assets management budgeting as one of the important ways to promote the development of the reform of state-owned enterprises is facing the new situation and tasks. Firstly, the sustainable development of national economy needs state-owned enterprises to play a more important role. Secondly is to cultivate internationally competitive world-class enterprises. Thirdly, the state-owned assets management budget system still needs further perfection. At last, the deputy director put forward five concrete suggestions for the SASACs at all levels regarding the assets management budget work. First one is to further improve the system of state-owned assets management budgeting. Second one is to establish a standardized and transparent assets budget mechanism. Third one is strengthening the basic work of assets budgeting. Forth one is to strengthen communication of assets budgeting work. Fifth one is to create a good assets budgeting work environment.

The SASAC also regulates the declaration of the state-owned assets returns. In the announcement regarding the declaration work of state-owned enterprises profits in 2014, the SASAC stressed that declaration of state-owned assets gains is the important foundation of state-owned assets gains collecting work. The state-owned enterprises shall, in accordance with the requirements of SASACs, pay high attention to and conscientiously implement the declarations, ensure completing information truthfully and accurately, and declare the annual state-owned gains to the SASAC on time. The announcement also regulated the declaration processes for different state-owned enterprises, such as the enterprises solely funded by the state and state-holding corporations.

Furthermore, the SASAC requires the state-owned enterprises to report the implementation of state-owned assets management budgeting periodically. For example, in the notification about submitting the reports of state-owned assets management budgeting in shantytowns from 2015 to 2016, the SASAC regulated the reports should include the overall situation of shantytowns reconstruction, budget implementations, process and achievement of the reconstruction, difficulties and political suggestion.

On August 29, 2017, SASAC convened a video meeting about the reducing the leverage of central enterprises. The director of SASAC, Yaqing Xiao, pointed out that SASAC attached great importance to the risk management for the debts of the state-owned enterprises. SASACs must strengthen the control of high-debt enterprises, beware of bond redemption risk, speed up the marketization of financing, actively yet prudently carry out debts into shares, focus on increasing equity financing and vigorously dispose "zombie" companies. The director also requested the central enterprises to strengthen capital constraint, revitalize the stock of assets, develop direct financing, promote the reform of the mixed ownership, enlarge the proportion of equity financing for major projects and provide multi-channels for capital supplementary. With the budgeting system and leverage management, the SASAC could operate the listed firms more efficiently than other controllers.

2 State-owned Enterprises Reform⁹

The SASACs make contributions to the reform of state-owned enterprises. To further improve the quality of the listed company, establish and perfect the investor rewarding system, enhance

⁹ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588924/c4297125/content.html>, <http://www.sasac.gov.cn/n2588030/n2588924/c4297156/content.html> [Accessed 25th, March 2018].

the investment value of listed companies, promote structural adjustment and steady and healthy development of capital market, the SASAC along with China Securities Regulatory Commission, Finance Ministry and China Banking Regulatory Commission announced several matters in August 2015. (SASAC Website) First, the SASAC vigorously promote merger and reorganisation of listed companies, including further simplifying the administrative examination and approval procedures, optimizing the approval process, encouraging the innovation of financing and payment in the mergers and reorganisation of listed companies, encouraging state holding listed company relying on the capital market to strengthen resource integration, intensifying the financial support and strengthening the supervision of listed company merger and reorganisation. Second, the SASAC actively encourage cash dividends of listed companies. Third, the SASAC supports to repurchase shares of listed companies. When the stock price is lower than the net assets per share, or p/e ratio or price-to-book ratio below the industry average level of listed companies and reach the pre-set degree, the listed companies can take the initiative to repurchase shares of the company. SASACs support the listed company to buy back shares and raise funds of the company through the issuance of preferred stock, bonds, etc.

To promote the reform of state-owned enterprises, the SASAC has the responsibility to execute the task of state council. On 29th and 30th March 2017, the SASAC and Finance Ministry jointly held a training for relieving state-owned enterprise of the obligation to operate social programs. (SASAC Website) The state-owned enterprises are burdened with social responsibilities, such as employee welfare and social security. Stripping the social functions from state-owned enterprises could improve the efficiency of enterprises and enhance the vitality of enterprises. In fact, the state-owned enterprises had undertaken a variety of social service function which should belong to social entity and public institution. Many state-owned enterprises treat the

social responsibilities as employee benefits. Internal medical treatment and education institutions could benefit employees and their children. Welfare service for the retirees improves the employees' sense of belonging and cohesion. These services essentially contribute to employee benefits. The enterprises are able to digest the costs and undertake low loss internally when profiting. Once the enterprises suffer losses, the welfare services will become huge burdens of the state-owned enterprises. It is necessary to relieve the social responsibility of state-owned enterprises, improve the employee salary welfare system and standardize the enterprise cost.

3 Social Responsibility¹⁰

SASAC issued 'the Guidance of the Central Enterprises to fulfil Social Responsibility' on 4th Jan 2008. (SASAC Website) 'Guidance' points out that the central enterprises fulfilling social responsibility is to fully implement the spirit of the party's 17th national congress, further implement the scientific outlook on development, the requirements of the whole society on central enterprises, the necessary choice to realize the sustainable development of the central enterprises and the objective demand for the central enterprises to participate in international economic cooperation and exchange. The 'guidance' also stresses that the central enterprises fulfilling social responsibility should adhere to three principles. First, the central enterprises must combine the social responsibility fulfilling and enterprises reforming, deepen enterprises reform, optimize the layout structure, and transform the mode of development. Second, the central enterprises should fulfil the social responsibility based on the basic national conditions and enterprises situations. Third, the central enterprises should guarantee safety in production, maintenance employees' legal rights and create harmonious labour relations. The 'guidance'

¹⁰ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588939/c4297486/content.html>, <http://www.sasac.gov.cn/n2588030/n2588939/c4297402/content.html> [Accessed 25th, March 2018].

requires the central enterprises to fulfil social responsibility in eight aspects. First, the central enterprises must operate in accordance with the honest and trustworthy. Second, the central enterprises must constantly improve the profitability. Third, the central enterprises must improve product quality and service level. Forth, the central enterprises must strengthen resource conservation and environmental protection. Fifth, the central enterprises must promote independent innovation and technological progress. Sixth, the central enterprises must ensure the safety of production. Seventh, the central enterprises must safeguard the legitimate rights and interests of workers. Eighth, the central enterprises must participate in social public welfare undertakings. The eight requirements are based on the overall characteristic of central enterprises, combining with the current China's national conditions and the enterprise reality. The central enterprises have different focus when performing social responsibility according to the characteristics of industry and enterprise features. The central enterprises should be in accordance with the main content of the eight aspects, combining the reality of enterprise, carrying out specific measures, specification, and fulfilling the social responsibility.

The deputy director of the SASAC, Shuhe Huang, summarized the process and results of the central enterprises fulfilling social responsibility at the press conference on 3rd August 2010. (SASAC Website) Since the establishment, the SASAC pays close attention to corporate social responsibility, actively promotes the central enterprise to perform social responsibility and achieves new progress and success.

First, SASAC establishes social responsibility working system and strengthening the management of social responsibility. Most of the central enterprises have established and perfected corporate social responsibility systems. Central enterprises have strengthened the

communication when performing social responsibility. Many companies issued social responsibility reports or sustainable development reports. Some reports obtained the favourable comments from domestic and foreign relevant institutions. Among them, China Ocean Shipping (Group) Company obtained sustainable development reporting initiative (GRI) highest grade A + and the United Nations global compact model prize of corporate social responsibility report.

Second, SASAC realizes the maintain and increment of state-owned assets and creates wealth for society. From 2002 to 2009, the central enterprise's total assets increased from 7.13 trillion yuan to 7.13 trillion yuan, with the average annual growth of 16.74%; operating income increased from 3.36 trillion yuan to 3.36 trillion yuan, with the average annual growth of 20.8%; profits increased from 240.5 billion yuan to 240.5 billion yuan, with the average annual growth of 19%. In 2009, there are 53 central enterprises of more than one hundred billion of assets, 38 enterprises of more than one hundred billion of revenue, 13 enterprises of more than one million of profit. A number of central enterprises not only are the pioneers in domestic industries, also have a strong competitiveness in the international market. There are 30 central enterprises in the fortune 500, increased by 500% of 2002. The central enterprises also contributed great wealth to the nation through taxes, state-owned capital gains, and transfers of state-owned shares into the social security fund.

Third, SASAC carries out the national macroeconomic regulation and control policy to ensure a smooth economic and social development. For example, central power enterprises conscientiously implement national price policy, overcome the difficulties of the long-term low electricity price, build reasonable electricity price formation mechanism and the sustainable

development ability, accelerate electric power construction, and optimize the allocation of national energy resources. According to the international energy agency statistics, from 2002 to 2007, average electricity price of 56 countries increased 76%, industrial electricity price increased 84% on average. Over the same period in China, the price only increased 32%. From 2005 to 2009, central grain companies implemented accumulated policy acquisition of more than 259 million tons of grain and oil, which increased the average annual income of the grain farmers by ten billion yuan directly. In the world's international food crisis from 2006 to 2008, the central enterprises enforced national minimum price to purchase, sell, auction and other controlling policy to maintain the stability of grain market, making China a "safety island" in the global food crisis. The petroleum and petrochemical enterprises actively support the national macroeconomic regulation and control to ensure the stability of the domestic oil supply and maintain China's fuel prices relatively stable. The refining plate of three central petroleum and petrochemical enterprises suffered a loss of 165.2 billion yuan due to the policy factors, of which the state provided financial subsidies about 63.2 billion yuan and companies used their own capital subsidy of more than 100 billion yuan.

Forth, SASAC strengthens the protection of resources and environment, and implements environmental responsibility. In 2009, the central enterprises invested 87.84 billion yuan in the implementation of energy conservation and emissions reduction. Compared with 2005, the central enterprises' comprehensive energy consumption fell by 15.1% in 2009. Emissions of sulfur dioxide decreased by 36.8%. Chemical oxygen demand decreased by 33.04%. Many central enterprises combining with the characteristics of their business, vigorously promote energy conservation and emissions reduction and environmental protection work. China Huadian attaches great importance to the soil and water conservation and ecological protection in the Wujiang River and Jinsha River hydropower development. The company implemented

the proliferation discharge protection project to protect the aquatic wild animals, such as the original carp and white turtle.

Fifth, SASAC actively absorbs employment, protecting the legitimate rights and interests of employees. The central enterprises positively response to the appeal “the key of ensuring people's well-being and maintaining stability is to protect the employment” from the state council. The companies take active measures absorbing as much as possible employment to ease the employment pressure. In 2009 central enterprises took the initiative to hire more two hundred thousand graduates, increased by 7% of 2008. Central enterprises shall, in accordance with the requirements of "cutting salary but no layoff, suspending but no unemployment”, stabilize employment, comply with the new labour law, sign labour contract with employees, cover five basics, namely insurance pension, unemployment, medical treatment, industrial injury and birth.

Sixth, SASAC takes an active part in social public welfare undertakings and plays a role of backbone at the critical moment in major natural disasters and the country's social development. The central enterprises to actively participate in the teaching assistant, charitable donations, development-oriented poverty reduction program for rural China. The companies sent capable cadres, invested a lot of money to help these areas to strengthen infrastructure construction. Rebuilding projects involves transportation, urban construction, education, science and technology, health, training, labour export and other fields. Many enterprises made donations and set up various forms of public welfare funds. According to incomplete statistics, the central enterprises donated 9.17 billion yuan in 2008 and 2009.

Seventh, SASAC perform the social responsibility in the overseas and establish a good reputation. By the end of 2009, there are 5901 oversea units invested and established by central enterprises in overseas and Hong Kong and Macao region. These oversea units comprise 4860

oversea subsidiary companies and 1041 oversea Institutions. The central enterprises comply with local laws, respect the local custom, protect the local environment, maintain the rights and interests of local employees, actively participate in community construction and make positive contributions to the local economic and social development.

4 Property Management¹¹

The SASAC regulates and manages state-owned equity of listed companies. In the ‘The Supervision and Administration of State-owned Equity of Listed Companies’ which was issued on 1st July 2018, the SASAC regulates change behaviours of state-owned equity in listed companies. (SASAC Website) The changes behaviours refer to the change of the owner, number or proportion of state-owned equity in listed companies.

Furthermore, the property market helps to promote the mixed ownership reform of state-owned enterprises and plays an important role in supply side structural reform, revitalizing the stock of assets and serving the real economy. Since the second half of 2016, there were 16 central enterprises increasing capital and shares through the property market, total introducing social capital of 40.6 billion yuan. For example, Sinopec succeeded in raising the social capital of 22.8 billion yuan to support gas network construction. The director of Sichuan SASAC, Jin Xu, pointed out that state-owned enterprises reform is essentially the changes of property right and the adjustment of governance structure caused by the property changes. The SASAC requires the property rights transferring and endowment spread increasing must be carried out in the public property right transaction institutions and provides the policy basis for the property market function.

¹¹ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588944/c9015521/content.html>, <http://www.sasac.gov.cn/n2588030/n2588944/c4297502/content.html> [Accessed 25th, March 2018].

5 International Cooperation¹²

Approved by the state council, the SASAC and UNIDO (United Nations International Development Organisation) jointly held the International Summit Forum of Merger, Acquisition and Reorganisation in Beijing from 19th to 20th November 2003 (SASAC Website). The theme of forum is acquisition and reorganisation – the bridge to integrate the global economy. The forum took the professional knowledge, high-level representatives and high-quality outcomes as the principles, stuck to the major issues of merger, acquisition and reorganisation in China and around the world, summarized the pattern of global merger and acquisition, discussed the development of merger, acquisition and reorganisation in China and the world, provided a platform for the communication about the MandA strategy, trends, methods, legislative, regulation, supervision, institutional reform and other issues. The forum was led by the SASAC director Rongrong Li and the UNIDO director Carlos Magarinos. The forum invited the directors and presidents of the companies which were active in the field of merger, acquisition and reorganisation in recent years, senior government officials of international organisations such as the UNIDO, the officials of Chinese government departments and agencies, experts and scholars in the field of merger, acquisition and reorganisation. The SASAC director RongRong Li also attended the World Economic Forum in 2004 (SASAC Website). Li answered the questions about the internal governance structural reform of state-owned enterprises, and the cooperation with foreign enterprises in the forum. The SASAC invited the executives of Ericsson to hold a seminar about the management experience of multinational enterprises on 12th October 2005 (SASAC Website). The financial control officer of Ericsson group and the chief financial officer of Ericsson (China) co., LTD introduced the matrix organisation structure, strict management system, effective decision-

¹² Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588949/c4403238/content.html>, <http://www.sasac.gov.cn/n2588030/n2588949/c4402966/content.html>, <http://www.sasac.gov.cn/n2588030/n2588949/c4402671/content.html>, <http://www.sasac.gov.cn/n2588030/n2588949/c4401235/content.html>, <http://www.sasac.gov.cn/n2588030/n2588949/c8853243/content.html> [Accessed 25th, March 2018].

making mechanism against the risk of investment and the difficulties faced by the new company. Their detailed presentation had both theoretical and practical depth, helping the SASAC learn overseas operating experience and draw lessons from Ericsson's management. The seminar provided valuable references for the central enterprises overseas subsidiaries.

Moreover, The SASAC, Korea SK group and China energy conservation investment company jointly hosted the meeting of the cooperative research about new and renewable energy on 22nd September 2009 (SASAC Website). The collaboration research of SASAC and the SK group is about the new energy industry and the new energy technology development in the two countries. The research used the technology developed by the SK group and China energy conservation investment company to strengthen the cooperation in the new and renewable energy projects.

The SASAC held a parallel session about the SOE reform during the 2018 annual meeting of the Boao forum for Asia (SASAC Website). The director of SASAC Yaqing Xiao, former director of WTO Pascal Lamy, the dean of national financial research institute of tsinghua university Zhu Min, and other guests had in-depth discussion about market integration and development. The guests said that opening to the outside world and win-win cooperation are the inevitable trend around the world. China has entered a new era of opening up. Further expansion of the opening up both conforms to the international trend and the global interests. China's state-owned enterprises always adhere to the win-win cooperation with advanced enterprises in the world and actively participate in international competition. The cooperation further stimulate vitality, activate the international market and provide better opportunities for development of advanced enterprises. Deepening reform and opening up can create a fair business environment for the international enterprises in China. China's state-owned

enterprises have advantages in technology, industrial chain and understanding the domestic and foreign markets. They must insist on innovation, enhancing the capacity of sustainable development, high-quality business and making its contribution to the development of world economy.

6 Appraisal and Distribution¹³

The ‘appraisal and distribution’ work is essential for SASAC to promote the SOEs reforming. The deputy director of SASAC, Fushun Xu, answered the questions from the journalist of *State-owned Assets Report* about how to improve the ‘appraisal and distribution’ work in central enterprise, how the ‘appraisal and distribution’ help cultivate competitive enterprises, how the ‘appraisal and distribution’ stimulate the vitality of employees and capital in 2018 (SASAC Website).

Xu explained the ‘appraisal and distribution’ work on three aspects:

First, the SASAC takes maximum advantages of the guiding functions of performance appraisal to improve the quantity of central enterprises. The goals of the operating performance evaluation for central enterprises are ‘quality first, efficiency first’. The system needs to be perfected in theoretical idea, objectives determination, practical design and evaluation mechanism, and plays a significant role in guiding the enterprises to continuously improve product quality, asset quality, management quality and profitability.

Second, the SASAC takes maximum advantages of the leverage functions of salary distribution to promote the operating efficiency of central enterprises. The salary allocation work pays more attention to improve the scientificity, pertinence and efficiency. Salary distribution could help

¹³ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588954/c9063797/content.html>, <http://www.sasac.gov.cn/n2588030/n2588954/c4297767/content.html>, <http://www.sasac.gov.cn/n2588030/n2588954/c4297771/content.html> [Accessed 25th, March 2018].

the central enterprises continuously improve labour output efficiency, inspire employees' enthusiasm and creativity, constantly promote reasonable cash flow and optimize the allocation of productive factors.

Third, the SASAC takes maximum advantages of the tractive functions of long-term incentive to promote the dynamic reform of central enterprises. Using the share incentive mechanism of listed firms, equity and dividend incentive mechanism of science and technology enterprises, employee shareholding mechanism of the mixed ownership enterprises, the SASAC can further stimulate the backbone employees' and scientific and technological personnel's enthusiasm and creativity and provide continuous power for the high-quantity endogenous development.

Furthermore, Xu pointed out that the central enterprises are the pillar of the real economy in China and provide high-quantity supplements. The 'appraisal and distribution' work based on 'break, raise and control' must deepen the supply side structural reform and revitalize the real economy. 'Break' refers to the destruction of ineffective supply in the enterprises. The 'appraisal and distribution' work can provide policy support to solve the issues of excess capacity, dispose the 'zombie companies' and reduce redundant employments. 'Raise' refers to the vigorous promotion of new kinetic energy in the enterprises. The 'appraisal and distribution' work will allocate, configure and agglomerate the resources to the emerging industries, speed up the development of advanced manufacturing and grab the developing opportunities. 'Control' refers to the costing control in the enterprise. The 'appraisal and distribution' work can guide the enterprises to control labour usage reasonably, allocate human resources accurately, link up the employee wage with the labour market price, connect the employee wage with responsibility, contribution and the firms' profit.

Xu also described the future work of SASAC to stimulate vitality of labour and capital. First, the SASAC needs to perfect the compensation management system and build high-quantity entrepreneur team. Second, the SASAC needs to improve the medium and long-term incentive mechanism and construct management and scientific research team. Third, the SASAC needs to improve the employee salary allocation and growth mechanism. The SASAC must actively implement the central policies, guide the enterprises adhere to the basic principle of ‘distribution according to work’, ensure and improve the workers’ welfare.

The SASAC also has the responsibility to regulate the compensation management system. Due to the imperfect external market environment and internal operating mechanism of the listed firms, the corporate governance structure needs to be improved. The SASAC standardized the compensation mechanism in the ‘announcement about the standards of the implementation of equity incentive system in state-owned listed firms’ on 21st October 2008 (SASAC Website).

First, the enterprises must set stringent conditions of the share incentive mechanism and improve corporate governance structure. The shareholders of state-owned listed firms must fulfil their duties as investors and help to establish a standardized corporate governance structure. After the outside directors of listed companies (including independent director) accounts for more than half of the board of directors and the compensation committee is entirely comprised of outside directors, the listed firms should further optimize the structure of the board of directors, improve the system of electing and replacing directors by the shareholders meeting, elect the board of directors according to the principle of specialization, professionalization and marketization.

Second, the enterprises must perfect the appraisal system of the share incentive mechanism and scientifically set performance goals and objectives. The listed firms should establish performance appraisal system and assessment method when implementing share incentive mechanism. The performance goals must be proactive and challenging. Furthermore, the listed firms need to

Third, the enterprises must reasonably control the compensation of the share incentive mechanism and link the share incentive income to the performance indicators' growth. According to the principle that shares prices match operating performance and share incentive earnings growth associated with the company's business performance growth, the listed firms should adjust employees' share incentive income with the equity incentive income performance targets.

Forth, the enterprises must intensify the management of the share incentive mechanism. The listed firms should perfect the granting methods of restricted stock and determine the restricted stock awarding level based on performance assessment results. The firms need to strictly control the objects of the share incentive mechanism and regulate the standardize the treatments when the objects resign or retire. Furthermore, the SASAC should establish social supervision and expert evaluation systems, regulate the behaviour of shareholders in the state-owned listed firms, improve the equity incentive reporting and supervision systems.

Moreover, the SASAC provides advices for the compensation management of executives (SASAC Website). The SASAC proposed management methods in the 'Strengthen the compensation management during the executives' second term of central enterprises. The

management proposals included adjusting the compensation with firm performance, regulating the assessment mechanism and compensation after the change of post.

7 Supervision¹⁴

Premier of the state council, Jiabao Wen, chaired a state council executive meeting and briefed the supervision and inspection of the central enterprises (SASAC Website). The conventioners heard the inspection report on central enterprises from the board of the State-owned Enterprise Supervision and Inspection Committee in 2005. The board of supervisors in large state-owned enterprises performed their duties according to law and completed the supervision and inspection tasks of central enterprises. The board of supervisors should further improve the supervision tasks, perfect supervision methods, strengthen supervision authority and effectiveness, promote the reform of central enterprises, standardize the management and risk prevention, ensure the preservation and appreciation of the value of state-owned assets.

The conventioners also pointed out that the board of supervisors must attach great attention to the SOEs reform and supervision tasks. First, the enterprises should further improve the corporate governance structure, investment risk control mechanism and internal supervision and management mechanism. Second, the enterprises must standardize enterprise restructuring and state-owned property rights transferring. Third, the enterprises should implement strict financial management and increase the intensity of the management of high risky business. Forth, the board of supervisors needs to strength the regulation of monopoly and unprofitable enterprises. Fifth, the enterprises should build state-owned assets management budget system, strengthen the supervision of the distribution of SOEs' profits, push forward the strategic

¹⁴ Source: SASAC Website. [Online] Available at:
<http://www.sasac.gov.cn/n2588030/n2588959/c4298264/content.html>,
<http://www.sasac.gov.cn/n2588030/n2588959/c4298183/content.html>,
<http://www.sasac.gov.cn/n2588030/n2588959/c4298157/content.html>,
<http://www.sasac.gov.cn/n2588030/n2588959/c4297842/content.html>
[Accessed 25th, March 2018].

adjustment of state-owned economic layout, speed up the SOEs' restructuring and technological innovation. At last, the enterprises must strengthen the construction of leaderships.

The establishment exterior board of supervisors is a major decision of the CPC central committee and the state council under the new situation to explore successful experience of the state-owned assets supervision system with Chinese characteristics. Since 1998, the exterior board of supervisors has made outstanding contribution to safeguard the investors' rights and interests, prevent loss of state-owned assets, and promote enterprise reform and development (SASAC Website). The exterior board of supervisors has gained exterior board of supervisors in the last 10 years. The exterior board of supervisors always adheres to Chinese characteristic and perfects the supervision system. The board meets the regulatory requirements of state council, maintains the independence and objectivity, insists on not participating in, not interfering in business decision making and management activities, and ensures the efficient operation of the supervision and inspection.

The SASAC also has the responsibilities to supervise and inspect the foreign MandA events. The SASAC investigated the foreign mergers and acquisitions of central enterprises and subsidiaries from 2004 to 2009 (SASAC Website). The investigation included checking the effectiveness of the controlling system and the compliance of the merging process, evaluating the rationality of mergers and acquisitions direction, estimate the effects of mergers and acquisitions, further standardize the behaviours of mergers and acquisitions, strengthen the risk control, improve the management system and promote the development of central enterprises. The SASAC puts forward important measures to increase supervision of the board of supervisors in the press conference on 26th October 2016 (SASAC Website). First, the SASAC

would strengthen the leadership. One extra committee leader was appointed to assist in charge of the work of the board of supervisors. Second, the SASAC would strengthen institutional support. The SASAC integrated the regulatory resources to set up the first supervision bureau, second supervision bureau and third supervision bureau. The supervision bureaus are responsible for the investigation, dispose and rectification of major issues reflected by the board of supervisors. They also inspect the significant loss of state-owned assets. Third, the SASAC would strengthen the strengthen operating mechanism. The SASAC organised three platforms, namely supervision platform, coordination platforms, decision making platform. They are responsible for discovering and reporting issues, coordinating work, and making decisions respectively. The deputy director of SASAC pointed out that these measures could strengthen the supervision of state-owned assets of enterprises, make full use of the superiority of the board of supervisors' system, and prevent the loss of state-owned assets

8 Administrative Organs Construction¹⁵

The SASAC promote the administrative construction, such as the selection and recognition of excellent ideological and political enterprises and employees. The SASAC convened a central meeting to award the units and individuals in November 2007 (SASAC Website).

The SASAC also improves the disclosure of state-owned assets supervision work in accordance with the law of the People's Republic of China government information disclosure regulations. The SASAC released the measures for the information disclosure of the state-owned assets supervision and administration, formulated the corresponding methods, established teams and

¹⁵ Source: SASAC Website. [Online] Available at: <http://www.sasac.gov.cn/n2588030/n2588964/c4406729/content.html>, <http://www.sasac.gov.cn/n2588030/n2588964/c4406438/content.html>, <http://www.sasac.gov.cn/n2588030/n2588964/c4405577/content.html> [Accessed 25th, March 2018].

offices for the information disclosure, and held a working meeting to clarify the responsibilities of the various team and units (SASAC Website).

Moreover, the director of SASAC, Yaqing Xiao, guided the construction work of assets supervision informationization on 3rd January 2017 (SASAC Website). The director pointed out that informationization is an important way improve the way of assets supervision, perfect the regulatory ability and prevent loss of state-owned assets. The SASAC must take maximum advantages of informationization, improve the efficiency of regulation and realize effective supervision through information system. The director also required that related departments should further improve financial regulation, explore efficient monitoring methods for the key indicators especially large capital expenditures, intensify financial informatization, realize property rights transaction regulation, focus on compliance of enterprises' internal decisions, strengthen the supervision and inspection of state property right trading behaviours.

Compared with other state controllers, the SASACs have strict supervision systems, such as the assets management budget mechanism, leverage reduction system, and serve in the front line of the SOEs reforms. The enterprises controlled by the SASACs are supposed to operate more effectively than those controlled by other state controllers. The SASACs also care about the public welfare, such as employment, price stability. They provide financial and political support to fulfil the social responsibility. The enterprises controlled by the SASACs should have higher employment than other controllers, but lower profitability than non-state controllers.

9 Governmental Departments

Besides the SASACs, there are numbers of governmental organs under the state council. The researcher from the state council development research centre, Wenkui Zhang, has explained the characteristics of SASAC after its establishment. (Wan and Wei, 2003) The SASAC is a unique institution under the state council and different from the existed governmental organ. Chinese government gives it the rights to manage the state-owned assets and flexibility in in many other aspects such as personnel selection mechanism and compensation system. Previous asset bureaus were the accountants of state-owned enterprises, but the SASAC is the institution exercising the investors' rights on the behalf of state council such as the selection rights of economic personnel. Even though the SASAC integrates the rights to regulate and supervise state-owned assets, the enterprises controlled by other governmental agencies such as the Ministry of Finance and Ministry of Education may have preponderance.

Most enterprises controlled by the Ministry of Education belong to the high-tech industries. The Chinese government attaches great importance to the innovation of science and technology. Innovation is an essential part during the reform of SOEs. The Guidance of the Central Enterprises to fulfil Social Responsibility issued on 4th Jan 2008 stressed that the central enterprises must promote independent innovation and technological progress. These technical innovation companies receive political support from the government and have the capacity to surpass other state-controlled enterprises. The SASAC has the rights to manage the property rights of SOEs, but the financial power still belongs to the Ministry of Finance. State-owned enterprises are a part of national finance substantially. The Ministry of Finance would give interest subsidies to the enterprises in difficulties and provides support for the state-owned enterprises suffering bankruptcy or laid-off workers. Theoretically, the SASAC manages the state-owned assets from the angle of investor, but the Ministry of Finance has connection with

the SOEs from the perspective of public finance and business. Without substantial financial rights, the SASAC's power is obviously restricted. In fact, the budget and final accounts are determined by the Ministry of Finance. SOEs controlled by the Ministry of Finance can receive direct financial benefits compared with other enterprises. The study classified all the governmental agencies excepting the government, asset bureau and SASAC as the governmental departments. The enterprises controlled by the governmental departments are supposed to have higher profitability than those controlled by the SASAC.