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**Master programme in International Economics with a focus
on China**

Relationship between Ownership and Company Performance:

Evidence from Chinese Company-Level Data

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For Chinese economy, the relationship between ownership and company performance is an important theoretical and practical topic. My research question is how ownership affect company performance and what is the basis determinant. In the view of macro, it relates to whether the economy system need further reform or not and if the economy could remain a sustainable growth. In the view of micro, it relates to the development of a company. There are two diametrically opposed views on this issue among economists, one includes property right theory and public choice theory while the other includes competition theory and shareholding structure irrelevance theory. There are two reasons why the conclusions are not consistent. Firstly, the theoretical basis and empirical research is not sufficient; secondly, the discrepancy of analysis indices selected is difficult to summarize the interaction of many factors and the special Chinese conditions. In this paper, we test whether ownership dose have significant impact on company performance after analysis, integrating and empirical study. Moreover we finally found that whether the property right is clear would be the root cause of which ownership affecting company performance dramatically. That is to say the company which has a clear property right system enjoys more profitability than others have not.

Keywords: Ownership, Shareholding Structure, Property right theory, Public choice theory, Competition theory , Company performance

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1. Introduction

1.1 Short introduction of research question

In any country or region, company is the central strength which makes national economy develop healthy and stable. Company performance is affected by the ownership? There exists the discrepancy among economists. This paper is going to analysis if there is a close relationship between ownership and company performance. And we want to test and corroborate ownership does have significant impact on company performance through the empirical analysis that based on the Chinese company-level data. As the research question of my thesis is “the study on the relationship between the ownership and company performance”, we posed three hypotheses as follows: firstly, if ownership has significant effect on company’s profitability; secondly, if private-owned companies perform more efficiently than state-owned companies; thirdly, if the phenomenon separation of two right will bring negative effect on company’s profitability.

The theoretical study in this paper is based on the “agency relationship” problem led by the separation of proprietorship and management at the company level. Further analysis will focus on the probability of which state-owned companies’ “double agent” relationship have more negative effect on company performance comparing to private companies’ “single agency relationship”, which will be deduced to that ownership does has actually impact on company performance. In order to corroborate the existence of this impact in the empirical analysis, we mainly selected the related data of 12400 companies (including 12203 effective companies)in 2004, so that we can analyze the impact on the company performance from companies of different kinds of ownership, proprietorship structure within company and other aspects. The study found that: firstly, the influence of different kinds of ownerships on company performance were significantly; secondly, we successfully investigate the profitability of the company and its comparison among different kinds of ownership within one

analysis framework by introducing a variety of evaluation index measuring company performance. We also obtained that operating performance of private companies and foreign companies are better than that of state-owned companies, which corroborates the theoretical analysis and judgment above. Naturally, my thesis can be also enriched for: study on the relationship between ownership and company performance--based on the empirical data of Chinese company.

1.2 Background

In the late 1970s, when Deng Xiaoping's economics began to dominate the reform and opening up of Chinese economy, Reagan – Thatcher's economics had began a salvation to their own countries' stagflation a couple years ago. When Reagan, Margaret Thatcher and Deng Xiaoping succeeds respectively in their own countries, people found the common ground among China, Britain and the United States among which exists a huge difference in economic system. That common ground is the trend of privatization of State economy with different extent or it performs more on that non-state-owned economy growing in China. These then raised economists' concerns about the relationship between ownership and economic growth. So it is our original intention to study the relationship between ownership and company performance.

The ownership issue in China are not only a theoretical but also a practical question which is very sensitive and tangle. As it involves the national ideology, so the cognition, development and evolution about it penetrating all over the 30 years' reform and the opening up. Even now it could not said there has been a satisfactory outcome. However the ownership issue is the core and inevitable issue in Chinese economic reforms conscientiously, it dominates every step of the process of economic reform. Furthermore, it matters if Chinese economy can maintain sustainable growth in the future.

In the modern society, the “triple-spiral” relationship among government,

companies and universities makes companies become the core of a country's economic growth while stock company becomes its typical form. From the aspect of ownership, the company has two forms they are state-owned company and private-owned company, so the problem of ownership structure then converted into shareholding structure problems at the company level. Company performance which regarded as the performance and efficiency of a company's business reflects the company's actual operating results on the one hand; it also reflects how property right affects a company's operations on the other hand.

Seeing from the existing literatures on the research of the relationship between ownership and company performance, although there are many arguments but the perspectives are different. Most of them focused on the relationship between shareholding structure and company performance then developed with "structure-conduct-performance" paradigm. Theoretically, there are mainly two thought. One group holds "ownership and company performance related theory" which thinks ownership has a significant impact on the company performance, state-owned companies are worse than private-owned companies both in efficiency and profitability. This perspective mostly considers the difference of performance between state-owned companies and private-owned companies from two viewing angles: property right theory and public choice theory (Alchma and Demsetz, 1972; Niskanen, 1975 & Tullock, 1976); Other group holds "ownership and company performance unrelated theory", that actually thinks ownership has no effect on company performance. This perspective's research angle is competition theory, they think the main reason which decides company performance is the competition of product market rather than ownership (Martin and Parker, 1997; Vickers 1995; Lin Yifu, Cai Fang and Li Zhou, 1997; Liu Shaoliang and Li Ji, 1998).

The theoretical research of the relationship between ownership and company performance has also forced vast empirical researches, these researches proceed mainly along two paths. One is measuring company performance through profitability

index, the other is to measure the company performance through the technical efficiency index. Chinese scholars' time node of empirical research almost begins from Chinese reform and opening up, so the conclusions consistently support "ownership related to company performance theory", which argues state-owned companies are the worst whether in aspect of productivity or in profitability. Although someone says that some state-owned listed companies have achieved profitability recent years, but more is regarded excess profits brought by monopoly (Wang Yu, Wang Yilin, 2011). State-owned companies are the products of incomplete economic reform, and they are objects which need to deepen the structural adjustment of ownership in the next step as well. As for which kinds of non-state-owned companies performs better in non-state-owned economy, there are different points of views holding.

1.3 Research question and research purpose

- What is the association between ownership and company performance in China.
- Which ownership has more significant effect on company performance especially between state-owned companies and private-owned companies.
- What is the basic reason for private-owned companies that the profitability is higher than that of state-owned companies (property right or others).

The main purpose of this study is to explore the basic reason why private-owned companies performs better than state-owned companies as well as to examine whether ownership has different impact on company's performance in China in addition, I want to study the concentrated ownership can better boost company performance than dispersed ownership by OLS method with Chinese company-level data.

1.4 Delimitations

Ownership and ownership structure

Ownership is the form that how people possess material goods, it reflects the

economic relationship between aspects of production material possess among people in the process of production. Ownership structure refers to the position, function and the relation of different ownership patterns in a certain social form, it reflect the external relation of ownership form. The relatively popular ownership form expressed as “nine-distributes method”, that includes the state-owned economy, collective economy, private economy, individual economy, joint-owned economy, shareholding economy, foreign investment economy, Hong Kong, Macao and Taiwan investment and other economies. Correspondingly, there are mainly eight kinds of company forms: state-owned companies, sino-foreign joint ventures, cooperative companies, wholly foreign owned company (WFOE), partnership company, limited liability company, company limited by shares and private companies. Based on the feasibility of empirical study, we merged all kinds of companies and enterprises into state-owned companies, private-owned companies, foreign companies and other kinds these 4 categories as the basis of analysis.

Company performance

Most economists usually focus on the efficiency when studying the relation between company performance and ownership, such as total factor productivity, technical efficiency (Yao Yang and Zhang Qi, 2001) and so on. In fact, the directly dependent factor is always profitability. Company profitability is the embody of management strategy and company's ability to generate profits, also is the reflection of activities like operating, investing and financing. According to the common practice of studying relationship between ownership and company performance, it can be roughly divided into two aspects of which one is the assessment of profitability of all company activities and the other is the assessment of business profitability. Indicators measuring all profitability of company activities have assets profit margin and net profit margins; indicators measuring company business profitability mainly have gross sale profit margin and the industrial added value, etc. This paper takes cost-profit ratio as indicator of company performance instead.

1.5 Method

Literature research method

We find the imperfection of theoretical analysis and to complete through researching, sorting and reviewing to related Chinese and foreign subjects and literatures. We treat the literature as theory basis of topic analysis.

Theoretical research combined with empirical research

In theoretical research section, thesis has involved in property right theory, public choice theory, competition theory perspective, through theoretical analysis, deductive or inductive logic, such theoretical research method. We put company performance under background of ownership and analyze the mechanism of action. In the empirical research part, we use existing data and the analysis of classical models inspect how ownership affects on company performance and its level.

Combining of qualitative analysis and quantitative analysis

To explain why the ownership affects company performance.

1.6 Disposition

This paper will base on the literature research firstly, then study the interaction between ownership and company performance while take some certain empirical research, and explain the underlying causes that ownership affects the company performance finally. And on this basis, try to make a few policy recommendations for further reform of Chinese economic system.

This paper mainly includes five parts: introduction, literature review, theoretical part, empirical study and conclusion.

2. Literature Review

2.1 Ownership and company performance relevance theory

It considers the difference of performance between state-owned company and private-owned company from two angles: property right theory and public choice theory. They mainly think that private-owned company has the advantage on the property. And from the angle of role of government, the private-owned company exhibits higher performance and surely better than state-owned companies. Here we will introduce the relationship between ownership and performance from these two different angles.

2.1.1 The angle of property right theory

This theory believes that a society without property right is a society in which efficiency is absolute low and the resources allocation is invalid. To ensure economy efficient the property must have the following characteristics: clarity, proprietary nature, tradability and operability.

Most companies whether state-owned or private-owned implement the management structure of separation of proprietorship and management. The owners of the company rarely manage the daily operations while the manager take charge of it. This arrangement allows both owners and managers play their advantages of specialization in fact (Fama and Jensen, 1983), but the separation of proprietorship and management has produced a so-called “agency relationship” problem, That means as the goals of the manager and the owners are usually not consistent, the manager may sacrifice the benefit of the owners to seeking personal gain instead (Jensen and Meckling, 1976; Shleifer and Vishny, 1994). To resolve the “agency relationship” problem properly which depends on the effective supervision on the managers.

Though the property right theory believe both state-owned companies and

private-owned companies all face the problem that managers seeking personal interests but not owners' interests result from the separation of proprietorship and management, but private-owned companies are more efficient than state-owned companies on dealing with "agency relationship" problem. Since private companies have an advantage on the property it will perform better than state-owned companies on company performance. One research by Alchian (1965) indicated that the proprietorship of private-owned companies are more centralized than state-owned ones and this proprietorship can be transferred and quit. The state-owned company's proprietorship is often extremely dispersed and often vaguely defined. Whether the company's operating status is good or bad, individual shares can not quit and transactions. As there is no trading market of proprietorship, it is impossible to get the information about the company's behavior, even not saying takeover and acquisition of a company. When proprietorship is highly fragmented, every owner will take free-riding by other owners who supervise on manager. Government protection and intervention exists abundantly, which make it very difficult to get information about the company manager's information of effort level. Soft budget constraints exists prevalently. Therefore, state-owned company has poor performance than private-owned company on supervision to manager by owners or in specific aspects of company management like taking over and bankrupt. Those literatures that hold a similar view are as well as (Kornai, 1980; Boardman and Vining, 1992; Vickers and Yarrow, 1991, Shleifer and Vishny, 1995; Schmidt, 1996, etc).

There is another school of scholars further pushing the research of ownership and company performance into the level of the relationship between ownership structure and company performance and then create the managers barriers theory. Fama and Jensen (1983) studied the influence of managerial ownership on company value from internal shareholders' supervision and reaction on external market. They believed that the rise of insiders' shareholding ratio will reduce the managers' threats which comes from outside control market. When the company's management staff has only a small amount of the company's shareholding, pressure from the outside markets prompted

the company managements acts to maximize the company's value. But when the managers' shareholding ratio reaches a certain scale, since the amount of managers' stock share are large enough to affect the decision of board of directors. So it will lead managers deviating the objective of maximizing the company's value which will lead the negative impact on the company. Morck, Shleifer and Vishny (1988)'s follow-up study also noted that when the managers' shareholding ratio more than 5%, managers barriers will appear.

Jensen and Ruback (1983) believe that the Board of Directors will make some bad decisions on the value of the company based on their job security considerations. That is company directors ignore the value of the company for the principle of self-interest. Stulz (1988) illuminated from the angle of acquisition that the increasing of insiders' shareholding ratio would enhance the premium of hostile acquirers who are aiming for management of target company and resulting the failure of the acquisition. So the managers' pressure from the takeover market will be reduced which will result in a decline of the company's value.

Most Chinese economists' research support the view above(Zhang Hongjun, 2000; Li Yougen and Zhao Xiping, 2004; Long Jiancheng, 2005; Shen Weicheng, 2012; etc.).

2.1.2 The angle of public choice theory

The public choice theory believes private-owned company exhibits higher performance than state-owned company from the perspective of government function. The theory is that, due to that the completely efficient does not exists in the political market (Vicker and Yarrow, 1989), it is very difficult to let government officials act according to social members' benefits. On the inefficient political market, government bureaucrats and legislators are more likely to seek to maximize their own utility. State-owned company managers usually focus more on how to maximize their power

and prestige meanwhile the government officials concern more about political goals like the support rate than the company's economic performance. The research of the impact of government behavior on company performance mainly concentrating on Shleifer and Vishny (1994); Boycko, Shleifer and Vishny (1996), Sappington and Stiglitz (1987), Shapiro and Willig (1990) etc. Boardman and Vining(1993) found that in western countries, the state-owned companies' performance significantly improved after privatization, so they believe the performance and efficiency in state-owned companies is not as good as that in non-state-owned companies. Laporta and Florencio (1999) found in Mexico, the proportion of main business in the sales of state-owned companies increased dramatically, which they also think just support the low efficiency of state-owned shareholding.

Shapiro and Willig (1990) believed that the managers in state-owned company could pursue both social welfare and personal interests or any target between them when the political market is imperfect. The more imperfect the political market is, the more likely for state administrative staff to seek personal interests. Boycko, Shleifer and Vishny (1996) also found that government behavior often happens in state-owned companies. Those government officials who have the right to control state-owned companies can actually gain far more interests than they perform the duties of government behaviors without undertaking any resulting inefficiencies and costs. Sappington and Stiglitz (1987) and Shapiro and Willig (1990) also believe different forms of ownership of the company (state-owned or private-owned) will affect the transaction costs that produced by government intervention on companies' operating activities. Actually, the state-owned companies increased the cost of government intervention.

2.1.3 The common ground of the two theories

From the property right theory and the public choice theory, we know there have such questions below: (1) excessive political interference. State-owned companies paid

more attention on the social and political objectives in the management which lead their emphasis on wealth redistribution rather than wealth creation; (2) managers' vague and conflicting goals; (3) politicians and civil servants can not supervise manager effectively as in private capital markets; (4) bankruptcy is not a threat, it seems that there is unlimited tax-payers' funding to support; (5) manager's salary is decided by politics; (6) a lacking of specific mechanism concerning incentives related to performance and reward. State-owned companies tend to hire advanced management that with more political resources rather than with higher management capacity. On the other hand, there are a large numbers of redundant workers in state-owned companies; (7) State-owned ownership confuse the role of industrial management and proprietorship which make management convert to inefficiency. The related ownership theory believe that it is charismatics of state-owned companies make the performance of state-owned company less than that of private-owned company inevitably.

2.2 Ownership and company performance irrelevance theory

There has been competition theory and shareholding structure irrelevance theory talking about the unrelated theory of ownership and company performance.

2.2.1 Competition theory

Competition theory believes company performance mainly related to the market competition. The critical reason determining the company performance is the competition of the product market rather than property right. State-owned company and private-owned company won't have a significant difference in the performance as long as under a proper market competition.

Martin, Parker(1997) found that the average efficiency of the privatized companies have significantly increase in the relatively full competitive market after compared the performance before and after the privatization of 11 state-owned

companies. While in the monopoly market, the average efficiency of the privatized companies shows no obvious improvement. They thus believe that there is no necessarily related relationship between company performance and ownership changes, in turn, it is related with the degree of market competition. In other words, the more fully market competition, the more incentive companies have to improve their efficiency.

Viekers' research (1995) believes, the impact of market competition on company performance comes from mainly two aspects: one is incentive effect and the other is information effect. For the incentive effect, competition in product markets can reduce market shares of the inefficient companies by which incentive effect will come true. Managers have to work hard to improve performance for keep surviving in front of competition. Under imperfect competition, lazy managers often feel very comfortable for the excess profits through monopoly and they think they should get them, which weaken their efforts to improve company performance. The information effect performs that: though it is difficult for the company consignor to get information about the company's costs and the manager's effort, competition can offer part of this information to the owner. Because what consignor estimate and expectation is a satisfactory profits. And when industrial competition strengthened, managers of low-cost companies can keep their companies a satisfied profits that owners expect under the condition of market shares falling slightly down. In the case of that competition makes products prices and the production cost generally declining, companies' related bad performance attributes to managers' lazy or not that diligent instead of companies themselves. Hart (1983) also pointed out that competition can reveal the manager information of effort degree by increasing sensitivity of profits for the the cost.

Kay, Thompson (1986) believe competition will improve the company's internal efficiency when the competition contains treats like receivership, bankruptcy. If the market can not wash the inefficient companies out, managers can not find incentives

to improve the company's production efficiency. They think that the threat of pulling out of the market and the role of competition in the market will work together to increase the productivity of the company. Caves (1990) argue that product market competition is the root of the resource allocation efficiency and internal efficiency.

Lin Yifu, Cai and Lizhou (1998) believe that a company's success or not is not related to its form of ownership, fully and fairly competition is the premise of the efficiency for a company. In the situation of the separation of proprietorship and management, as the business management information which manager and owner hold is asymmetric and it is incentive incompatibility between managers and shareholders. So the information that can reflect the company's operating conditions is very important. And this information could only come from competition. In conditions of fair competition market and market of lack competition, whether state-owned ownership or private-owned ownership company, it is inevitable leading to the phenomenon that managers infringe owners' benefit and the soft reduce company's effect. Under the condition of fair competition, all the companies no matter state-owned or private-owned can utilize the indirect governance mode and internal governance structure endogenous and realize effective supervision on managers to keep companies operating efficient.

Lin (2002) further research argued although the poor efficiency state-owned companies performs relative to private companies, but there is a reason. "policy burdens" include "social burden" which was thought is the basic factor of why state-owned company performs very inefficient. "social burden" said by Justin Yifu Lin (2002) means comparing with non-state-owned enterprises, state-owned companies have more workers, more social functions and more debt, which further lead to "strategic burden" for state-owned company. That is state-owned companies are forced to focus on capital intensive industry and sections, and Chinese comparative advantage exist in labor intensive industry or labor intensive parts in the high-tech industry. Expense caused from the social burden undertaken by State-owned

companies reflect mainly through “management fee” and “financial expenses”, management expenses and financial expenses affect enterprise current profit, but does not affect company sales profit.

Lin, Cai and Li (1999) suggested that the low efficiency of state-owned companies comes from the soft budget constrain caused by policy burden. They also pointed out that changes of property right such as privatization may not solve the problem of soft budget constrain. Whether developed countries or developing countries, whether developed market economy or economic transition countries, it is hard to overcome soft budget constrain problem as long as the company undertake policy burden, and company performance will be effected. Whether the company bear policy burdens have no direct relationship with the company's ownership form. They regard transition countries with a radical way in the privatization reform as a example, shows that under the condition that policy burden did not be eliminated, privatization can not solve the problem of soft budget constraint of large state-owned companies. And after the policy burdens being eliminated, it is not necessary for state-owned companies to privatize if state-owned companies have the same performance with private-owned companies in fair competition market.

Liu Shaoliang and Li Ji (1998) got the similar conclusion. They thought there is no direct relationship between company performance and belonging and changes of property right. Instead the level of competition has a strong relationship with company performance. The more intensively competition in market, the high degree of effort the company's managers work for increasing. Because change of property right did not give the choice of “live” or “die” for companies, it just changes the companies' incentive mechanism, but this change does not guarantee that the company performance will improve. The change of property right is not the necessary conditions that company improve structure and increase performance. Only through competition can a company improve mechanism and enhance efficiency. The reason is that competition will create two ends: “survive and develop” and “being eliminated

and death". Summarized, if a company do not improve the governance structure, it is bound to face the fate of being eliminated by competition. To survive and develop, companies must continue to create the governance mechanism and governance structure for enhancing company profitability.

2.2.2 Shareholding structure irrelevance theory

This school of thought denies the impact of ownership on company performance from the angle that shareholding structure is irrelevant with company performance. Fama (1980) analyzed the relationship between shareholding structure and company performance from the angle of efficient market. He believes that when the market is efficient, the company performance will be reflected in the stock price. External effective products market and manager market will make the company's internal management working with a vigorous effort. So the company's shareholding structure is irrelevant with the company performance.

Demsetz's (1983,1985) research shows that company's shareholding structure is a kind of endogenous variable, we cannot simply assert that there is some fixed relationship between shareholding structure and company performance. He believes the shareholding structure is the equilibrium which is achieving by the shareholders' competitive selection, also is the shareholders' self-selection. According to the principle of maximizing benefits, shareholders will decide their own shareholding ratio. So there is no systematic correspondence between company's shareholding structures and company performance. Their researches supported so.

2.3. Literature of empirical study on the relationship between ownership and company performance

That state-owned companies have a lower company performance than private-owned companies has been supported by a mount of empirical researches and empirical data. Holz (2002) supported that policy burden makes state-owned companies a lower

company performance using Chinese industrial statistical data. Liu Xiaoxuan (2003) found that the proportion of state-owned economy and the net profit margin of that industry are significantly correlated. Liu Wei and Li Shaorong (2001) also found in their empirical study that the improvement of the proportion of non-state economy is conducive to helping improve the efficiency of the total factor productivity. Bai Chongen, Lu Jiangyong and Tao Zhigang (2006) researched the effect of company restructuring on company performance and social performance by 1998-2003 data of Chinese state-owned companies and non-state-owned companies above designed size, and the results showed that although restructuring could enhance company performance, but some social cost will be produced at the same time. Li Nan and Qiao Zhen (2010) used DID (different-in-different) model and got the results that the performance of state-owned companies turn apparently better than year before 2003 based on the related Chinese industrial data from 1996 to 2003. So the restructuring is significant for state-owned companies to improve company performance.

More empirical study and empirical data have analyzed that although Chinese state-owned companies' performance has improved a little bit since 2003, however, it is very low comparing with private companies and foreign companies. Liu Xiaoxuan (2003) analyzed the effect of property right and market structure on industry performance using census data of industrial companies in 1995. The result founded variable of state-owned property right has a negative relationship with industry performance, state-owned companies always be contacted with market of monopoly and lacking of competition. Li Shouxi (2007) studied on the relationship among property right, agency cost and agency efficiency regarding Chinese electronic industry (less government regulations and more fully competition within) from 2000 to 2004 as research objectives. The results showed the agency cost of state-owned companies was significant higher than that of mixed property right, and even more than that of private property right. Besides, the greater scale of the company has, the smaller gap between different kinds of companies the agency cost will have. Wu Yanbing (2012) made an empirical analysis for the discrepancy between production

efficiency and innovation efficiency of state-owned companies, private-owned companies and foreign companies based on Chinese large and medium companies' industrial data in 31 provinces from 1998 to 2003 six months, which corroborated state-owned companies can only operate for short-term as the natural deficiency of property right, which induce "double efficiency loss" for production efficiency and innovation efficiency. Li Yong, Wei Jie and Wang Manchuang (2013) calculated the productivity of different kinds of companies with Malmquist index and further did empirical test with panel threshold model, the test presented companies of different kinds of ownership have a dynamic micro efficiency, market level and reform of property right are the key influencing factors of companies' micro efficiency and the discrepancy. Fang Junxiong (2009) found the ROC (return on capital) significant lower than that of non-state-owned companies, but the (ROS) return on sales is on the opposite. Further study found that with the speeding up of the marketization process, the gap between state-owned companies' ROC and non-state-owned companies' ROC will expand while the gap of ROS shrinking continually, which means the deficiency of management mechanism and low-level management is also the important reason that lead to the poor company performance in state-owned companies. All in all, if we look from the empirical research and empirical data analysed at home and abroad, it is objective existence that ownership affects company performance. Conclusion will differ as different angles of knowledge research and different selected indicators.

3. Theoretical study

In Chinese system of teaching and research, the core of ownership is explained as the means of production belongs to whom. But the nature of ownership is not simply decided by who owns the means of production nominally, but decided by a social way that how laborers and means of production combine. Proprietary is simply shows the possession of means of production in legal, is nominally possession, while ownership emphasizes a economic possession in process of production, that is the real possession.

Here, the legal possession and economic possession, the nominally possession and real possession have the fundamental difference (Wen Hongchao, 1983). Lin Guangrui and Deng Chun (2010) broken down the ownership at three parts: generalized ownership, narrow sense ownership and property right system. He thinks that generalized ownership is the sum of production relations. Narrow sense ownership is the possession mode of means of production. Property right system is how to set the rights, the responsibilities and the benefits, and how to arrange the system of processing rules. This three have both connections and differences, constitute an institutional system. They believe, the relation of ownership and the economic components needed to be regulated and achieved by property right system. And both property right system and ownership will change with the development of productive forces.

Evolutionary economics believes, all the economic system are diversity from the angle of economy. Such proposition constitutes the diversity theory of the ownership of evolutionary economic or the property relations (Wang Shengli, 2013). G•M• Hodgson, the representative of evolutionary economic believes there will be many kinds of ownership in varieties society, but in accordance with the principle of advantages, there will be only one ownership occupies a dominant position. In certain conditions, dominant ownership and its practice form is diverse, its development form and future trends are diverse, too. Therefore, a company's internal systems' organization form and operation mechanism also showing diversity when the company deals with the external environment's changes, its specific represent form is the complexity of company's shareholding structure. Thus the relationship between ownership and company performance always converted to the relationship between ownership and shareholding structure. So there resulting two ways to research the relationship between ownership and company performance: one is analyses the impact on company performance from the angle of property right theory. The impact of relationship determined can in turn promote economic reform. The second is analyses the impact on company performance from the angle of company shareholding

structure, a scientific studies will help to improve the corporate governance.

Through the analysis above, we know it is scientific to analyze the issue based on property right theory and public choice theory. The performance view of property right theory is based on ownership originally, public choice analyze the impact on various ownership's performance from the role of government. But the key problem is, property right theory only noticed the "agency relationship" brought by the separation of proprietorship and management, while completely ignored the absence of main subject in 'state-owned' proprietary. That is to say, the ownership in state-owned company is an 'incomplete' ownership, we do not know who is the real owner of state-owned property. Can he exercise all duties as same as private property owners unswervingly? All these are in doubt. From the practical implementation of various counties, the state-owned property owner always designated by a country's government or ruling party, they manage and control the state property for the country and ruling party. In another word, the owner of state-owned property is also 'agent'. They may sacrifice owner's benefit to seek for their personal interests, this agency relationship is called 'first tier agency relationship'. In Chinese economy, president represented state-owned property often eroding state assets, such news are not uncommon. It illustrates this phenomenon of seeking personal interests have basis in reality. This is the problem in state-owned companies' operation called "double agent". Due to the existing literature only focus on 'second tier agency relationship', while flawed on theoretical analysis, so this paper argues that the theoretical analysis should be perfected.

In the shareholding diversified companies, comparing to the private property, the control of state-owned property will be weakened because of "double agent relationship", thus affects the company's performance. Its conduction mechanism can be summarized as: "double agent relationship" → the possibility of agent seeking personal interests or lacking responsibility → proprietary weakened and decentralized → company performance decreasing.

From the public choice theory, the impact of ownership on company performance is clearly visible: when political market is imperfect, the idea market will lack, thus affecting innovation ability. When managers (agents) prefer power and prestige to economic efficiency, public officers will be more regularly seeking for personal benefits, thus it is difficult to concentrate to management like private property right, resulting in decline of company performance.

Seeing from the actual operation process of Chinese state-owned companies, government intervention can reduce company performance also can help the company access to special interests. State-owned companies often asked by the government to undertake "political" mission of absorbing recessive unemployment people. The recessive unemployment existing in state-owned companies for long-term and large-scale brought obvious negative impact on company performance (Lin Yifu, 2002). The International Labour Organization and the Chinese ministry of labor showed in "company surplus Labour force survey" in 1995 that the comprehensive recessive unemployment of urban companies was 18.8% closer to the figure estimated by other state authorities to visible unemployment rate (25% for The state planning commission and the commission for economic restructuring, 20%-25% for The national research agencies, 20% for national statistics bureau, 10%-12% for department of labor) (Wang Cheng, 1996).

The study by Fan gang (2000) showed state-owned companies has priority in such aspects like finance, which make a relatively increased cost of non-state-owned company to get capital. Then it caused that resources will transfer from non-state-owned companies to state-owned companies. That is, through financial market, government actually imposes implicit tax from non-state-owned companies or hidden subsidies to state-owned companies. Later, state-owned companies got excess profits. Although this practice increased short-term company performance, but in the long run, this action will damage the company's management ability and it is easy for

a company to form “path dependence” of obtaining such dishonest earnings. More importantly, it harms the fair principle. Chinese economics field call this approach “paternalism”.

The reason that competition denied that there is a direct relationship between ownership and company’s performance could be driven how to reveal the core reason of relationship between ownership and company’s profitability. The theory argued that company’s performance mainly depends on market competition and there is no obvious difference performance between state-owned companies and private-owned companies under the condition of market competition(Lin Yifu, Cai fang and zhou li, 1998). It is only said that competition is the important condition of a good company’s performance but it did not deny the influence of other factors including ownership on company’s performance. Further studies show that the evolution of market structure and industrial organization has strong explanatory power on loss model of state-owned companies in transition (Zhang Jun, 1998). The problem is in the developing countries like China, when we do not have the fair competition environment, it is difficult to rule out ownership’s effect on company’s performance from theory and logic perspective. Instead a large number of economic practice shows that ownership are the important factors that affect company’s performance which is good or bad in turn will become the driving force for the reform of system of ownership relations. It has high consistency in Chinese economic practice.

The study of company performance can be traced back to the 19th century at the earliest. Since the 1990 s, the company performance management in Europe and the United States was paid more and more attention. The concept and the corresponding system of performance appraisal are also changing as the carrying out of companies’ total quality control and other activities like process reengineering, from emphasizing on financial indicators in the initial to paying attention to the overall efficiency of the operation and development. Personal assessment methods mostly adopt Management by Objective (MBO) and 360-degree appraisal method, the organization appraisal

method however adopt Key Performance Indicators (KPI) method and the Balanced Score Card (BSC) method. The survey of 1000 large companies by Gartner Group for the wealth of the world showed that 70% of the company's performance adopted the method of Balanced Score Card (BSC) method, North America, Europe, nearly 50% of the companies adopt the same method to carry out performance appraisal. In addition, foreign experts and scholars designed a corresponding performance diagnostic and evaluation software that has been more widely used in companies of developed countries. This software is basic on psychological theory and designed by the character and ability of man, also doing the strict quantitative analysis. In addition, the big companies of developed countries usually adopt some unique method. For example, using the performance evaluation by subordinates, Toyota synthesize company performance, remuneration and ability and to maximize the exploitation on employee's ability is the final goal. In this paper, we will primarily focus on the analysis of relationship between ownership and company performance, so we only choose a few commonly used indicators for company performance in the fourth section of the article empirically.

It is because the ownership has a profound effect on company performance, many developing countries implemented economic reforms and ownership structure adjustment in order to improve the company performance. Ownership structure adjustment reflects a kind of trade-off of government between economic growth and social stability. According to the optimal economic transformation path which is under the control of government we can get the evolution of the ownership structure and its endogenous equilibrium (Chen Zhao, 2002). The subject also involves evaluation of property relations reform for other economies. The series research on the optimal path of Eastern Europe and other countries by foreign transition field also containing the understanding of the ownership structure adjustment of transition countries (Katz and Owen, 1993; Aghion and Blanchard, 1994; Chadha and Coricelli, 1997). Different with the Russia who adopted the “shock” radical reform theory, China chose the gradual path for ownership structure adjustment. Who wins? We can't get the

conclusion too early. Some economists like Sacks (2000) and Mr Acemoglu (2009) agree on the “Russia model”, they thought the final transition performance may be overtaken by Russia and Eastern Europe countries. The logic contains here is that the ownership not only have an impact on company performance and has a big impact.

3.1 Conclusion

Based on different definitions of ownership, there are two research approaches for our research question. The “double agent” relationship exists objectively in state-owned companies, which is theoretical basis of research analysis. In addition, the imperfect political market and the lack of thought market will affect the innovation ability; the preference measurement of Chinese government at all levels on state-owned companies is essentially to impose tax to private-owned companies and to subsidize to state-owned companies actually. As a result, the principle of equity was impaired. Moreover, the measurement indices of company performance are different each other. Of all the feasible choices we choose cost-profit ratio in this paper. In the end, to improve company performance is the aim of ownership structure adjustment and China will adjust the structure of ownership a lot in the future.

4. Empirical study

4.1 Model description

Depended by our research question, we limit the date scope at the questionnaire of 2005 which should be applied in a regression function with OLS. Furthermore, we intend to find a dependent variable standing for company’s profits and some independent variables standing for the corresponding influencing factors. For the dependent variable, I prepare to construct a new form which can well measure the profitability that is total profits/total expenses. While the most difficulty may be the selection of control variables. Since a bad selection will affect the regression function and the results. Next step, by means of OLS, we proceed to estimate the draft

following model:

$$\begin{aligned} \text{profitability}_i = & \beta_0 + \beta_1 \text{ownership}_{2i} + \beta_2 \text{ownership}_{3i} + \beta_3 \text{ownership}_{4i} + \beta_4 \text{directrelationship}_i \\ & + \beta_5 \text{tax}_i + \beta_6 \text{internationaltrade}_i + \beta_7 \text{education}_i + \beta_8 \text{training}_i + \beta_9 \text{boardofdirectors}_i \\ & + \beta_{10} \text{commercialdisputes}_i + \beta_{11} \text{companyage}_i + \beta_{12} \text{city}_i \end{aligned}$$

Our main task is to explore how $\beta_1, \beta_2 \dots$ etc. effect on Y which is total profits in the regression function. In this regression, ownership_i represents the categorical variable ownership, $\text{directrelationship}_i$ represents the dummy variable based on the question “Is GM’s annual income directly related to the company’s performance”, tax_i represents the numerical variable total tax of a company, $\text{internationaltrade}_i$ represents the dummy variable based on the question “Is your company allowed to export products directly”, education_i represent the numeric variable education level, training_i represents the dummy variable about training condition, $\text{boardofdirectors}_i$ represents the dummy variable based on the question “Does your company have a Board of Directors”, $\text{commercialdisputes}_i$ represents the dummy variable based on the question “How many commercial disputes have occurred between your company and the wholesale dealers/clients in the past 3 years”, companyages_i represents the numeric variable about companies’ establishment time while city_i represents the dummy variable about companies’ location.

Interpretation:

Profitability_i represents dependent variable, while $\text{ownership}_i, \text{tax}_i, \text{education}_i \dots$ etc. represent independent variables and the parameters are to measure what extent can variables explain the model. ε_i represents error term capturing everything about the unmeasured which is affecting dependent variable. So our target is to specify the relationship between dependent variable and independent variables mostly how ownership, tax, education, loan situation, international trade, company’s age and city sectors affect total profits.

To continue, the hypothesis can be posed as follows:

Hypothesis 1: if ownership has significant effect on company’s profitability.

Hypothesis 2: if private-owned companies perform more efficiently than state-owned companies.

Hypothesis 3: if the phenomenon separation of two rights will bring a negative effect on company's profitability.

4.2 Data

Data sources

The company data is from the survey of Chinese company's investment climate, collected by the Chinese National Bureau of Statistics in the year of 2004 (survey questionnaire (2005)), which is our data set in my paper.

The reason we choose the survey questionnaire of 2005 is that: firstly, amount of Chinese economists' researches showed that SOEs (state-owned enterprises) accelerate their reform pace dramatically since 2003 when is the turning point for Chinese state-owned companies; secondly, at the same time, many large and medium-sized state-owned companies implemented shareholding reform and listed in the market continuously. These two reasons both will cause negative impact on our research question. Considering that the results of shareholding in the early reform looks obviously, so we chose the data of year 2004 as our data set which can make us reveal the essence factor that affect company performance more convictive (Bai Chongen, Lu Jiangyong and Tao Zhigang, 2006; Fang Junxiong, 2009; Shen Weicheng, 2012).

This survey has included data of 12400 companies in China. These companies were selected from 120 cities among 30 provinces in China. The survey covers very detailed information about companies: names, the established time, age, ownership, registered capital and its resources, employees, wages, incomes, equity, tax, subsidies etc. In our study, we try to pick up the influential power of the company's profitability,

only the factors has strong relationship with company's profitability will be chosen. At last, we want to test the underlying relation between ownership and company's profitability and explore the origin of influence.

Dependent variable

Profitability

The impact of company's performance on owner's decision which focus on their holding is intensively based on prior studies. To measure company's profitability, it is difficult to choose an ideal profitability indicator for Chinese companies. Having scrutinized empirical studies of ownership profitability relationships, ROA (return on assets) is typically used. Considering about the effect brought by company's profitability and the given data in this survey, we can't find any available data concerning to total assets. So I decided to choose total profits/total expenses as our measure of dependent variable as it could also suitably reflect the relationship between ownership and company's performance especially profitability from different perspective. Moreover we want to see how company's ownership affect company's profitability and the different situations comparing state-owed companies and private-owed companies. So, we chose total profits/total expense as dependent variable of which total profits can be found in our data set while total expenses=core business expense+core business taxation and additional expenses+operation expense+overhead expense+financial expense+interests expenditure. Core business expense, operation expense, overhead expense and financial expense can all be find in our given survey.

Independent variable

Ownership (A4)

Generally, the empirical cases suggests that public companies are very inefficient compared to private companies (Megginson, *et al*, 1994). Normally, state-owned companies (SOEs) enjoy the soft budget constraint while private companies entail the hard budget constrain. Based on this, private companies will work harder than

state-owned companies to compete for market. Moreover, private companies have more motivation than those state-owned companies so that private companies have a higher efficiency. So, private companies will probably get more total profits than state-owned companies meanwhile they will enjoy a higher performance efficiency.

Loan can also affect company's profitability dramatically under different kinds of ownership. In order to get more profits, the company should enhance investment to create opportunities. While to increase more investment a company should get more loan from lending institutions. Commercial banks are the most common lending institutions. Furthermore, lending institutions would like to issue loans to companies that have stronger repaying capability. So these lending institutions often prefer to give the loans to state-owned companies rather than private-owned companies since those state-owned companies have support from government so that lending institutions don't afraid the loan will disappear. While no one can guarantee for private-owned companies.

Regarding ownership of government(state), as well as much more consistent in academy. State ownership is regarded as bureaucratic and inefficient. Alessi (1980 and 1982) defines that the state-owned companies as "political" companies with general public as a collective owner. Proprietorship is exercised by a certain degree of bureaucracy, it is not a clear intention to gain company profits. Vickers and Yarrow (1988) consider the lack of motivation as the main argument against state ownership. Other explanations includes the pricing policy (Willig and Shapiro, 1990), political interference and the human capital issues (Shleifer and Vishny, 1994).

According to Vishny and Shleifer (1994), state-owned companies are controlled by bureaucrats that may have strong centralized managements, but no significant cash flow constraints rights since all the profits generated by the companies are channeled to the national treasury to finance the government's budget. This is caused by bureaucrats and political objectives, often deviate from prudent business policy

(Repei, 2000). Such enormous inefficiency of state-own companies have precipitated a wave of governance changes in economies around the world in the past two decades by heightened privatization of state-owned companies.

Ownership_i is a very typical dummy variable. While we could adjust it as a categorical variable thus four different groups were created to express different types of ownership in which state-owned and private-owned are the most important studying objects. Summarized, four dummy interval variables were generated depending on diverse ownership based on company's ownership types.

D1 for companies those are state-owned

D2 for companies those are private-owned

D3 for companies those are foreign investment companies

D4 for companies those are others

Separation of proprietorship and management (I61)

This variable is based on I61 in survey that is "Is GM's annual income directly related to the company's performance" (GM means General Manager). It is another hypothesis we want to test and it's very important for our results. Based on our theoretical part, we want to get a kind of result like the separation of the proprietorship and management dose play a negative role on company's performance and profitability which can support our argument.

Control variables

Total tax (AB511)

No exception, all companies will face different kinds of tax and tax has gradually becomes one of the most important part of financial expense. Tax burden includes every taxes company should pay such as value added tax, consumption tax, business tax, income tax and so on according to the different management project. Besides, taxes appear with transportation cost, time cost and the communication cost of the taxation authority all can be classified as tax cost. They are all tax burden for

company. Thus the tax will affect company's total profit to some extent. The fluctuation of tax will change the economic behaviors of every economic unit. Meanwhile, the company's profits will also affect tax relatively since a company should pay more taxes if the company has earned more profits.

International trade (G4)

International trade is another interesting factor influencing the relationship between companies and the government. It is apparently that international trade is a critical and convenient channel to get more total profits and get higher profitability. When the saturation of domestic market happens, companies need to make full use of foreign trade to make up the loss in domestic market. International trade can be affected by exchange rate, interest rate and some other factors, so it is a very complicated independent variable. However, international trade does have a close relationship with company's total profits. Summarized, this is worth studying. Also we treat it as a dummy variable.

Education (AC13)

Education should be a critical factor we think because education can measure a person's ability to some extent. Any company want to occupy market should enhance their staffs' education level. Moreover, the company would like to employ the people who have bigger capacities and higher education level as he can more probability finish work better. So, the higher education will bring companies more profits.

Training (E101)

Training is similar with education to some extent as they all are aimed to increase the level of staffs of a company. Higher level education level will lead to higher skill level which can underlying affect company's profitability in the future. So the training is also a key independent variable.

Commercial disputes (C3)

This variable is based on “How many commercial disputes have occurred between your company and the wholesale dealer/clients in the past 3 years?”. Obviously, this variable can decide the working attitude and quality of service. According to our assumption, companies have more commercial disputes with clients will degrade their profitability meanwhile companies have less disputes with client should match with a relatively higher efficiency. In a word, commercial disputes is a appropriate endogenous variable measuring company’s profitability.

Board of directors (I4)

Board of directors is a key word in front as we analysis in our theoretical part. In common, every listed company owns a board of directors which can effectively enhance companies’ profits in generally. Moreover, this kind of management form makes decisions rational and companies operating at a fast way. Furthermore, board of directors sufficiently embody the principle of justice. So, we would like choose I4 which is “Dose your company have a Board of Directors” as an independent variable.

The scale of companies or the age of companies (A1)

Based on the theory of scale effect, one company which has a magnificent scale will get times profits far more than expected. Large companies get loan easily while small companies get loan hard. Then, it would be easier for large companies to get loan after obtained large numbers of profits. On the other hand, the age of company can reflect the experience to a great extent. An company has more experience will probably create more profits and perform more efficient. Hence, control the scale or age of companies is quiet imperative. In this paper, we treat this variable as a dummy variable.

City (city)

City is the last independent variable of our regression function. The situations of companies in various cities are variant whether the company scale or company power. On the other hand, the differences between cities are generally huge. For instance,

companies in Beijing will benefit the convenient geographical advantage and they can enjoy privilege prior and the first-hand information that will become the competition advantage of these cities in Shanghai comparing to those in other second-tier cities. The same as age of companies (A1), we regard it also as a dummy variable.

4.3 Model and analysis

Missing data, wrongly coded data, outliers

Firstly, we must drop the missing data. After picking the data, we finally chose ten independent variables those are: a4 ownership, ab511 total tax, g4 international trade, a1 age of companies, city city, i61 separation of the proprietorship and management, ac13 education, e101 training, i4 board of directors, c3 commercial disputes. And one dependent variable that is ab1114 total profit or total profits/total expenses (another way). Next, we should drop the missing data and the wrongly coded data. Observations that lower than 1865 (years) in a1 (age of companies) also be dropped as they are outliers and it is meaningless to compare too old companies with newly companies. Furthermore, we dropped the wrongly coded data in i4 and i61 (board of directors and separation of the proprietorship and management). Also the wrongly coded data that education=999. Then we transform all the variables with type of “string” to “numeric” variables. The sample contains all information needed for 12203 observations. Then we got the following descriptive statistic for each variable was present in Table 1:

Table 1: summarized descriptive statistics for variables

Variable name	Mean	Standard deviation	Min	Max	Obs
Total profits	25594.16	260904.6	-37488	1.36e+07	12203
Total expenses	456046.2	2221583	14	9.77e+07	12203
Ownership	4.67172	2.025265	1	9	12203
Total tax	27394.95	240553.2	-50751	1.16e+07	12203
International trade	1.586331	0.4925107	1	2	12203
Education	18.33607	17.77181	0	100	12203
Training	1.124816	0.3305233	1	2	12203
Company age	1991.257	13.64016	1865	2002	12203
Commercial disputes	9.40826	82.5956	0	2122	12203
Board of directors	1.280751	0.4493843	1	2	12203
The relationship between GM's annual income and company performance	1.33164	0.4708216	1	2	12203

Source: a. Author's calculations with survey questionnaire 2005 by Chinese Bureau of Statistics.

b. GM stands for General Manager

We could see clearly that the total tax (27394.95 Thousand Yuan) takes up a very big proportions of total profits. We could also see from Table 1 that there are 12203 observations in our regression function. The mean of commercial disputes is about

9.408 times; the mean of total tax and age of companies are respectively 27394.95 Thousand Yuan and 1991.257. The standard deviation of total profits and age of companies are respectively equal to 260904.6 and 13.64016. More importantly, the mean of total profits is equal to 25594.16 Thousand Yuan and its standard deviation is equal to 260904.6. For total expenses, the mean is 456046.2 Thousand Yuan while the standard deviation is 2221583 Thousand Yuan. The unit of total profits, total expense and total tax is Thousand Yuan while the unit of companies's age is year. As the others are dummy variables, so there should be no unit for them.

Variable construction

Table 2: the mean value of total profits with international trade

	Directly export	No directly export
Mean	0.051	0.031

For our dummy variable directly export the mean value of total profits was calculated in Stata, as above, we found that there seems slightly different results on total profits between directly export and no directly export. We could define directly export as a dummy variable when commercial disputes is equal to 1.

Table 3: the mean value of total profits with training

	Training	No training
Mean	0.043	0.014

For our dummy variable training the mean value of total profits was calculated in Stata, as Table 3 above, we found that there seems a little different result on total profits between training and no training. We define training as a dummy variable when training is equal to 1.

Table 4: the mean value of total profits with board of directors

	Company have board of directors	No board of directors
Mean	0.044	0.029

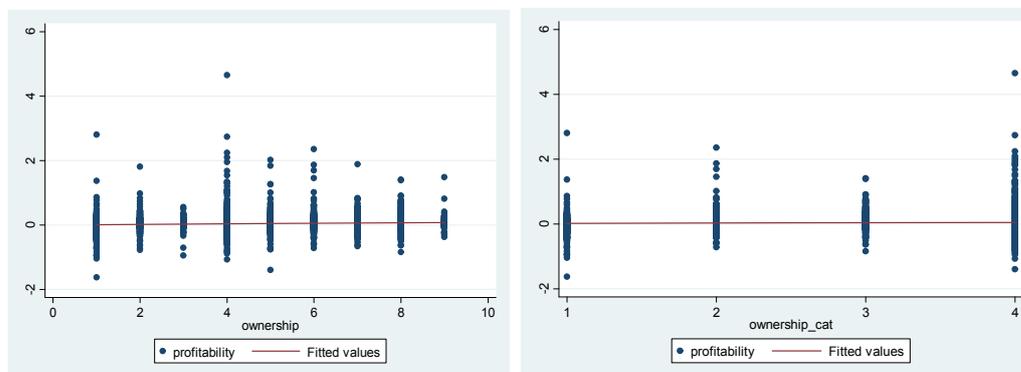
For our dummy variable board of directors the mean value of total profits was calculated in Stata, as Table 4 above, we found that there seems small different result on total profits between having board of directors and no board of directors. So we define having board of directors as a dummy variable when board of directors is equal to 1.

Table 5: the mean value of total profits with separation of proprietorship and management (GM means General Manager)

	GM's annual income have direct relationship with company performance	No direct relationship with company performance
Mean	0.046	0.026

For our dummy variable the relationship between GM's annual income and company performance. The mean value of total profits was calculated, as Table 5 above, we found that there seems also small different impact on total profits between having direct relation and no direct relation. As a result, we define having direct relation as a dummy variable when board of directors equaling 1.

Graph 1: the “twoway” method on relationship between total profits and ownership (left) and after classified (right)



Graph 1 shows the relationship between the ownership and total profits. Although the graph describes a inconspicuous trend between the variables, the line slope is not as steep as expected so the level of ownership will be more suitable than the number of ownership. So for this, in order to allow for a more flexible function form, the following five categories were created naturally: D_1 (ownership_cat_1), D_2 (ownership_cat_2), D_3 (ownership_cat_3) and D_4 (ownership_cat_4) that mentioned in last part. Moreover, one category of ownership (D_1 represent state-owned companies) was omitted from the regression in order to avoid perfect multicollinearity. Thus, the first group (D_1) represent a reference category which means that all estimated regression coefficient of other four are interpreted as a change in profitability associated with the given ownership group compared to the first group, holding all other variables fixed.

Regression function

$$\begin{aligned} \text{profitability}_i = & \beta_0 + \beta_1 \text{ownership}_{2i} + \beta_2 \text{ownership}_{3i} + \beta_3 \text{ownership}_{4i} + \beta_4 \text{directrelationship}_i \\ & + \beta_5 \text{tax}_i + \beta_6 \text{internationaltrade}_i + \beta_7 \text{education}_i + \beta_8 \text{training}_i + \beta_9 \text{boardofdirectors}_i \\ & + \beta_{10} \text{commercialdisputes}_i + \beta_{11} \text{companyage}_i + \beta_{12} \text{city}_i \end{aligned}$$

Then we can do the regression in STATA as follows:

Table 6: the estimated coefficients from regression model

Variable	Estimated coefficient	Standard error	Number of obs:12203
Ownership_cat_2	0.054*** (0.000)	0.007	F (225,11977)=3.86 Prob>F=0.0000
Ownership_cat_3	0.066*** (0.000)	0.007	R-square=0.0677 Adj R-square=0.0502
Ownership_cat_4	0.049*** (0.000)	0.006	
Total tax	3.80e-08*** (0.000)	5.80e-09	
International trade	0.007* (0.035)	0.003	
Education	0.0006*** (0.000)	0.00008	
Commercial disputes	-3.32e-06 (0.860)	0.00002	
Training	0.020*** (0.000)	0.004	
The company have board of directors	-0.010** (0.009)	0.004	
GM's annual income have direct relationship to company performance	0.015*** (0.000)	0.003	
Ages*dummy	Yes		
Cities*dummy	Yes		

a.P-value is indicated in the brackets *** $p < 0.01$; ** $0.01 < p < 0.05$; * $0.05 < p < 0.1$

b.Ownership_cat is a categorical variable, international trade, commercial disputes, training, the company have board of directors and GM's annual income have direct

relationship to company performance are all dummy variables.

First of all, the overall F-test with 225 degree of freedom suggests that all explanatory variables are conjunctly significant on 5% level of significance ($p < 0.05$). It means variables included in the model necessary factors in determining the total profits. All these explanatory can explain 6.77% of variation in the total profits (based on R-square value is equal to 0.0677).

The R-square of the line-line model in Table 6 above is 6.77% and the Adjusted R-square is 5.02%. It means that 6.77% independent variables could be explained. Moreover, F-value is equal to 3.86 and the p-value is equal to 0.0000. It can be a signal of significant and a good F value ($F > F_{critical}$).

The coefficient of direct relation with company's performance is obviously positive and is equal to 0.015, we could interpret that the profitability will increase if GM's annual income directly related to the company's performance comparing to those don't relate to; with the same interpret way, the profitability will enhance if companies has more total tax compared to those have not had that much. Meanwhile the profitability will increase if companies allowed to export products directly. The p value of D₂ (ownership_cat_2), D₃ (ownership_cat_3) and D₄ (ownership_cat_4) are respectively 0.000, 0.000 and 0.000 all far less than 0.05, indicating that ownership is very significant and has strong effect on profitability. More important, private-owned companies and FIEs perform more efficient than state-owned companies. For example, the profitability of private-owned company is 0.054 higher than that of state-owned company on average; the profitability of FIEs is 0.007 higher than that of state-owned company on average as well. The coefficient of commercial disputes is about $-3.32e-06$ that interpret the profitability will decrease by $-3.32e-06$ result from one unit increase with one unit total tax while the coefficient of shareholding companies and FIEs are significant than other kinds of ownership. There are two main reasons been put forward to explain the phenomenon of high profits related to foreign

ownership of companies. Firstly, foreign owners are more likely to have monitoring and management personnel and may give them the performance based incentives, leading managers to manage more seriously, and to avoid activities or behaviors that undermine the wealth creation motivations of the company owners. Secondly, it is the transfer of new technology and worldwide tested management practices to the enterprise, which help to improve efficiency by reducing operating costs and generating savings for the company, and of course, it will also gain the profits for the company. What deserve to be mentioned is that if the company has no board of directors the corresponding profitability surprisingly shows higher than the company which has a board of directors.

In a word, it seems that most of independent variables have significant influence on profitability except commercial disputes that means the number of commercial disputes have occurred between your company and the wholesale dealers/clients in the past 3 years while the others have less effect on total profits.

Next, we tested the Heteroskedasticity as follows:

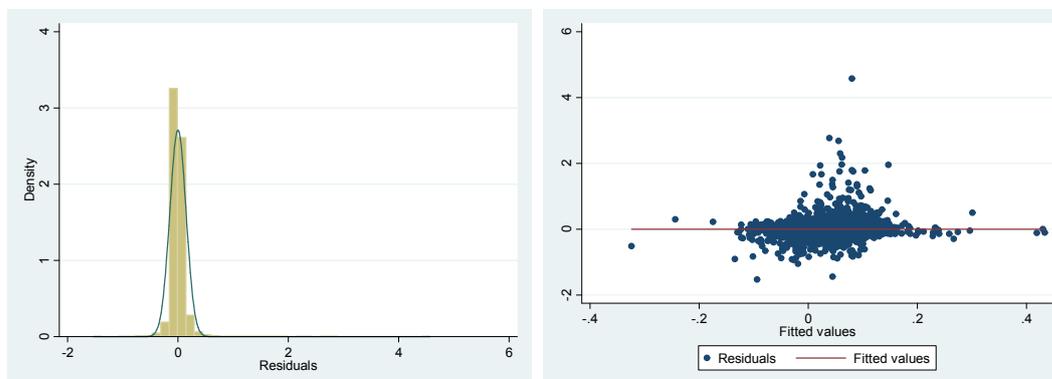
Table 7: Heteroskedasticity test

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of profitability

chi2(1)          =    276.19
Prob > chi2      =    0.0000
```

The result shows that the value of Prob>chi2 is equaling to 0.000. So it passes the test and it has Heteroskedasticity. Next step, we should do some effective measures to deal with it. In order to get a more fitness model, the best way to correct Heteroskedasticity is to using robust standard error method (We should have transfer model to logarithmic form but there are some Y values under null).

Graph 2: residual plot of histogram and scatter



From the plot left we can conclude that it's a kind of Heteroskedasticity (right) as we can see it's a hat like shape and we can see some individual point gather around about 0.8. While the residual accord with normality.

We can get from the robust model in total there are 12203 units of observations in this logarithm regression function. Similar to previous one, we should focus on some key indicators: the p-value of almost every parameter are equal to zero expect directly export and commercial disputes with client which means these two factors have less effect on the total profits. The R-square is equal to 0.0677 that means there are nearly 6.77 percent of X variables can be explained dealing with this model. Finally, most indicators of ownership forms changed significant except commercial disputes indicator.

Hypothesis test:

Hypothesis 1: if ownership has significant effect on company's profitability.

Hypothesis 2: if private-owned companies perform more efficiently than state-owned companies.

Hypothesis 3: if the phenomenon separation of proprietorship and management will bring a negative effect on company's profitability.

We can find that: if we do F-test for overall, $H_0=\beta_1=\beta_2=\dots=\beta_{12}=0$; H_1 =at least one of β is not equal to zero. Seeing directly, F (210, 11977) should higher than the critical value then reject the null hypothesis. However the p value of F is equal to zero so it's very significant and support to reject null hypothesis. Then we start to discuss t-test. We thought almost all the t value of X variables is quiet bigger than the critical p-value with 95% confidence level and 12203 observations except commercial disputes with government which t value is equal to -0.17, this t value with its 0.863 probability may receive null hypothesis and reject the alternative hypothesis. While all hypothesis 1, 2 and 3 were rejected.

5. Conclusion

Based on our results, we basically support our assumption that the kinds of ownership does has significant effect on company performance or companies' profitability; among all three kinds of ownership including state-owned companies, private-owned companies and FIEs (foreign investment enterprises), FIEs perform the best and private-owned companies come next, that is state-owned company has less efficiency than any of the two; in addition, the separation of proprietorship and management does has a negative effect on companies' profitability, which can support the property right theory which believe the belonging of property right is the determinant of all factors that will affect company performance and profitability.

Comparing to the previous study on the relationship between ownership and company's profitability, the innovation of this paper focuses on two aspects. Firstly, from perspective of theory aspect, state ownership of state-owned company exist the problem of subject vacancy. The owner of state-owned property right are often managed by government or the ruling party, which means the owner representing state-owned property right also has characteristic of "double agent". Contrasting with "double agent" problem of state-owned company and "single agent" problem of

private-owned company, state-owned company will probably more easier violate the benefits of owners. To fundamentally prevent this possibility evolving into reality, companies should strengthen the supervision and management of two kinds of agents and improve the internal management mechanism could the problem be expected overcome.

Secondly, from the perspective of empirical, my paper based on the statistical data of 2004 companies in China and analysis the relationship between Chinese company's ownership and corporation performance. With econometrics model, we analyzed the company scale, service level, management ability and influence on company performance and corroborated that company's ownership have significant effect on the company's profitability. Through the introduction of a variety of measure of company's profitability evaluation index, we achieved within an analysis framework to investigate the profitability of the company and its comparison of different ownership, also obtained the private companies and foreign companies operating profitability are better than that of state-owned company, which examines the previous theoretical analysis and conclusion.

The deficiency of this article is it restricted by the data type while some selected indicators can only roughly reflect the content of the study and can not fit our research question vary much, which to a certain extent may affect the accuracy of calculation. The fitness level of the measurement result is not that good though the correlation is high. The accuracy of the measurement and index selection need constantly adjust along with further studies.

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Appendix

```
. sum if boardofdir!=. & directrel!=. & education!=999
```

Variable	Obs	Mean	Std. Dev.	Min	Max
idstd	12203	478859	3572.465	472661	485060
education	12203	18.33607	17.77181	0	100
ab1102	12203	402572	2024427	0	9.20e+07
ab1105	12203	8218.637	129511.9	-15177	7406845
ab1109	12203	14773.49	87215.4	-5652	4793522
ab1110	12203	21601.84	147140.4	-38705	1.03e+07
ab1111	12203	4584.915	22548.89	-499270	676695
ab1112	12203	4295.347	21680.38	-516490	649846
totprofits	12203	25594.16	260904.6	-3748814	1.36e+07
tottax	12203	27394.95	240553.2	-50751	1.16e+07
training	12202	1.124816	.3305233	1	2
boardofdir	12203	1.280751	.4493843	1	2
directrel	12203	1.33164	.4708216	1	2
inttrade	12203	1.586331	.4925107	1	2
age	12203	1991.257	13.64016	1865	2002
ownership	12203	4.67172	2.025265	1	9
disputes	12203	9.40826	82.5956	0	2122
city	0				
totexpenses	12203	456046.2	2221583	14	9.77e+07

```
. xi: reg profitability i.ownership_cat tottax intrtradeyes education disputes tr
> s* if boardofdir!=. & directrel!=. & education!=999
i.ownership_cat  _Iownership_1-4      (naturally coded; _Iownership_1 omitted)
note: ages8 omitted because of collinearity
note: cities79 omitted because of collinearity
```

Source	SS	df	MS	Number of obs =	12203
Model	18.9381788	225	.084169684	F(225, 11977) =	3.86
Residual	260.84654	11977	.021778955	Prob > F =	0.0000
				R-squared =	0.0677
				Adj R-squared =	0.0502
Total	279.784718	12202	.022929415	Root MSE =	.14758

profitability	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_Iownership_2	.0540008	.0068632	7.87	0.000	.0405479	.0674537
_Iownership_3	.0662361	.0074157	8.93	0.000	.0517001	.0807722
_Iownership_4	.0492496	.0058714	8.39	0.000	.0377407	.0607585
tottax	3.80e-08	5.80e-09	6.55	0.000	2.66e-08	4.93e-08
intrtradeyes	.0067476	.0032021	2.11	0.035	.000471	.0130242
education	.0005966	.0000848	7.04	0.000	.0004305	.0007628
disputes	-3.32e-06	.0000188	-0.18	0.860	-.0000401	.0000335
trainingyes	.0197947	.0042809	4.62	0.000	.0114035	.0281859
boardofdiryes	-.0092422	.0035199	-2.63	0.009	-.0161419	-.0023425
directrelyes	.0152203	.0029769	5.11	0.000	.009385	.0210556
ages1	.0311014	.2099739	0.15	0.882	-.3804814	.4426842
ages2	-.0485201	.2096598	-0.23	0.817	-.4594872	.362447
ages3	.0038036	.2099304	0.02	0.986	-.407694	.4153013
ages4	-.0335907	.2099157	-0.16	0.873	-.4450596	.3778782
ages5	-.1378897	.2088239	-0.66	0.509	-.5472184	.271439
ages6	.0397227	.1657367	0.24	0.811	-.285148	.3645935
ages7	.0092913	.1812211	0.05	0.959	-.3459314	.3645139

```
. xi: reg profitability i.ownership_cat tottax intrtradeyes education disputes tr
> s* if boardofdir!=. & directrel!=. & education!=999, robust
i.ownership_cat   _Iownership_1-4      (naturally coded; _Iownership_1 omitted)
note: ages8 omitted because of collinearity
note: cities79 omitted because of collinearity
```

```
Linear regression                               Number of obs =   12203
                                                F(210, 11977) =      .
                                                Prob > F       =      .
                                                R-squared      =   0.0677
                                                Root MSE      =   .14758
```

profitability	Robust					[95% Conf. Interval]	
	Coef.	Std. Err.	t	P> t			
_Iownership_2	.0540008	.0078652	6.87	0.000	.0385837	.0694178	
_Iownership_3	.0662361	.0078189	8.47	0.000	.0509099	.0815624	
_Iownership_4	.0492496	.0065923	7.47	0.000	.0363277	.0621715	
tottax	3.80e-08	5.25e-09	7.23	0.000	2.77e-08	4.83e-08	
intrtradeyes	.0067476	.0031962	2.11	0.035	.0004825	.0130127	
education	.0005966	.0001033	5.78	0.000	.0003942	.0007991	
disputes	-3.32e-06	.0000193	-0.17	0.863	-.0000411	.0000345	
traininyes	.0197947	.0045304	4.37	0.000	.0109145	.0286749	
boardofdiryes	-.0092422	.0031134	-2.97	0.003	-.015345	-.0031394	
directrelyes	.0152203	.0029821	5.10	0.000	.0093749	.0210657	
ages1	.0311014	.0179444	1.73	0.083	-.0040726	.0662754	
ages2	-.0485201	.0149478	-3.25	0.001	-.0778201	-.0192201	
ages3	.0038036	.0166487	0.23	0.819	-.0288306	.0364378	
ages4	-.0335907	.0252608	-1.33	0.184	-.0831059	.0159245	
ages5	-.1378897	.0072439	-19.04	0.000	-.152089	-.1236905	
ages6	.0397227	.0228819	1.74	0.083	-.0051295	.0845749	
ages7	.0092913	.0249425	0.37	0.710	-.0396001	.0581827	

Interpretation: Intrtradeyes means the company can directly export.

Traininyes means the company provides trainings.

Boardofdiryes means the company has the Board of Directors.

Directrelyes means the GM's annual income of a company directly related to the company's performance.