Board composition and firm performance: 
a quantitative study on Chinese listed companies

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Abstract:

Corporate governance is a popular topic in many countries. In fast growing markets like China, investors are eager to improving the governance mechanism. Research on this topic in China are increasing in recent years, however, many of these studies have obtained inconclusive findings because of various reasons such as fast changing of the market, management methods and different approaches. Board of directors as the monitors for management and trustee for shareholders play an important role.

This study reviews previous literatures and studies from both advanced markets and Chinese market. It examines the correlation between board composition and firm’s performance of Chinese listed companies. The sample is composed by Chinese local companies listed on Shanghai Stock Exchange. A quantitative approach will be adopted to examine the correlation between board composition and firm performance for listed companies. The sample includes companies from the manufacturing industry, other service industries and financial service industry. Some other determinants that may have an impact on firm performance are also examined, such as the correlation between firm performance and ownership structure, firm performance and board size.

After having analyzed the results, no significant associations between the proportion of independent directors in the board and firm performance were found. But the ownership structure has some association with firm performance. It found that a firm with higher concentrated ownership structure has a tendency to have a better firm performance. A negative correlation between board size and firm performance was found too.

Keywords: Corporate governance, Board of directors, independent directors, ownership structure.
# Table of Contents

1 INTRODUCTION.......................................................................................................................... 6

1.1 BACKGROUND................................................................................................................................. 6
  1.1.1 DEVELOPMENT AND STATUS OF CORPORATE GOVERNANCE......................................................... 6
  1.1.2 BOARD OF DIRECTORS.................................................................................................................. 7
1.2 CORPORATE GOVERNANCE IN CHINA .......................................................................................... 9
1.3 PURPOSE........................................................................................................................................... 11
1.4 RESEARCH QUESTIONS..................................................................................................................... 13
1.5 LIMITATIONS.................................................................................................................................... 13

2 THEORETICAL METHOD...................................................................................................................... 15

2.1 CHOICE OF TOPIC ............................................................................................................................. 15
  2.2 PRE-UNDERSTANDING....................................................................................................................... 15
  2.3 THEORY ABOUT METHODOLOGY AND RESEARCH PHILOSOPHY ....................................................... 15
  2.4 SCIENTIFIC APPROACH ..................................................................................................................... 16

3 CORPORATE GOVERNANCE AND BOARD OF DIRECTORS IN CHINESE LISTED COMPANIES ................................................................. 18

  3.1 “SOCIALIST MARKET ECONOMY” -THE DEVELOPMENT SINCE 1979 ............................................. 18
  3.2 PROBLEMS UNDER THE HIGH SPEED DEVELOPMENT OF ECONOMY ............................................. 19
  3.3 CHINESE STOCK MARKETS ............................................................................................................. 20
  3.4 PARTICIPANTS OF CHINESE STOCK MARKET .................................................................................... 21
  3.5 EXISTING PROBLEMS IN CHINESE SECURITY MARKET ..................................................................... 23
  3.6 CURRENT STATUS OF CHINESE COMPANIES .................................................................................... 23
  3.7 STATUS OF CORPORATE GOVERNANCE IN LISTED COMPANIES ..................................................... 24
  3.8 OWNERSHIP STRUCTURE ................................................................................................................... 25
  3.9 INDEPENDENT BOARD SYSTEM IN CHINA’S LIST COMPANIES ......................................................... 26
  3.10 SUMMARY OF CORPORATE GOVERNANCE OF CHINESE LISTED COMPANIES .............................. 28

4 THEORETICAL FRAMEWORK .............................................................................................................. 32

  4.1 CORPORATE GOVERNANCE ............................................................................................................. 32
    4.1.1 DEFINITION ..................................................................................................................................... 32
    4.1.2 MECHANISMS AND CONTROLS ........................................................................................................ 34
    4.1.3 DUTIES OF BOARD OF DIRECTORS .................................................................................................. 35
  4.2 BOARD CONFIGURATION .................................................................................................................... 35
    4.2.1 BOARD SIZE .................................................................................................................................... 35
    4.2.2 BOARD COMPOSITION AND OWNERSHIP STRUCTURE .................................................................. 36
4.3 LITERATURE REVIEW ........................................................................................................37
4.3.1 EMPIRICAL RESEARCH ON THE RELATION BETWEEN BOARD SIZE AND FIRM
PERFORMANCE................................................................................................................37
4.3.2 RESEARCH ON THE ASSOCIATION BETWEEN PROPORTION OF INDEPENDENT
DIRECTORS AND FIRM PERFORMANCE........................................................................38
4.3.3 FINDINGS ON ASSOCIATION BETWEEN OWNERSHIP STRUCTURE AND FIRM
PERFORMANCE................................................................................................................39
4.4 LITERATURE REVIEW ON BOARD COMPOSITION OF CHINESE LOCAL COMPANIES ... 40
4.5 SUMMARY ......................................................................................................................41
4.6 HYPOTHESIS ..................................................................................................................44

5 PRACTICAL METHOD ........................................................................................................46
5.1 SOURCES OF INFORMATION .........................................................................................46
5.2 DATA COLLECTION ..........................................................................................................46
5.3 RELIABILITY ...................................................................................................................48
5.4 VALIDITY ........................................................................................................................49
5.5 GENERALISABILITY .......................................................................................................49
5.6 RESEARCH DESIGN ........................................................................................................50
5.7 DEPENDENT VARIABLES AND CONTROL VARIABLES .............................................51
5.8 REGRESSION MODEL ......................................................................................................53
5.9 LIMITATION IN THIS RESEARCH DESIGN ..................................................................54

6 ANALYSIS AND RESULTS ..............................................................................................56
6.1 DESCRIPTIVE STATISTICS............................................................................................56
6.2 CORRELATION TEST ......................................................................................................56
6.3 SIMPLE LINE REGRESSION ..........................................................................................58
6.4 REGRESSION TEST RESULTS .......................................................................................62

7 CONCLUSION AND FURTHER STUDIES ... .................................................................66

LIST OF REFERENCES .......................................................................................................70

APPENDIX I FIRM PERFORMANCE AND INDUSTRIES .....................................................76
APPENDIX II NAMES OF THE COMPANIES IN SAMPLE ..................................................78
APPENDIX III INDUSTRY DISTRIBUTION IN SSE ............................................................81
1 Introduction

In the introduction part the layout-description and background of this study will be presented. And it will lead the purpose and research problems as well as limitation of this study.

1.1 Background

1.1.1 Development and status of corporate governance

Corporate governance is a popular topic in many booming markets including China and some South Asian countries. Especially after suffered financial crisis in 1998, corporate and investors realized that how important to established efficient governance mechanism in capital market. Indeed corporate governance is one of the most popular topics in resent years. “Corporate governance, which is the way in which companies are controlled, directed and made accountable, has become the focus of much academic and practitioner interest.” (Conyon&Peck, 1998, p291) “One primary issue that corporate governance tries to resolve is the agency problem, which rises from the conflicts of interest between the principals (shareholders) and agents (managers), a product of the separation of ownership and control.” (Liu and Fong, 2010) In Conyon and Peck (1998) they explained that the issue of corporate governance appeared ever since the traditional model of “owner-managed firm” was replaced by the separation of ownership from decision-making control. “Under this separation, ownership confers a number of rights in return for bearing uninsurable risk.” (Conyon&Peck, 1998, p292) It indicates that when management and ownership are being separated, it is possible that there is a “conflict of interest” between them.

If taking more types of agency problems into consideration, the definition of corporate governance will reach a broader range. Denis and McConnell (2003) think corporate governance is a summation of enterprise internal mechanism and external mechanism; it can spur the management, who might have a tendency to chase personal benefit, to make decision by the rule of maximizing the value of shareholders. Generally speaking, internal mechanism and external mechanism are two different approaches to solve the potential conflicts between owners and management, large and small shareholders. External mechanism includes legal system, function of protecting small shareholders’ interest, and market competitions, etc. Internal mechanism includes board of directors,
top management team, and disclosure of accounting information, etc. This study will review literatures on board of directors and to examine if there is any or what kind of impact of board composition on firm’s performance.

Many advanced markets have successfully established efficient governance mechanisms. Shleifer and Vishny (1996, p 2) stated that “United States, Germany, Japan, and the United Kingdom have some of the best corporate governance systems in the world…” Usually OECD countries are recognized as where corporate governance has experienced long period development and achieved very mature modality. Yuan (2009) stated five categories of topics that corporate governance dealing with according to OECD Principles prescribed. They include: (1) the right of shareholders; (2) the equitable treatment of shareholders; (3) the role of stakeholders in corporate governance; (5) the responsibility of the board. (Yuan, 2009, p140) These topics could be as very useful references for other less developed markets who want to establish efficient governance mechanism. China, as one of the largest fast-growing markets, the concept of corporate governance has been imported into Chinese market within two decades accompany with the development of Chinese stock market. The detailed status of corporate governance and some significant current problems of Chinese security market will be introduced in chapter 3.

1.1.2 Board of directors
One of most important mechanisms of corporate governance is the company’s board of directors. The functions and efficiency of board of directors have become the focus in academic. “Firm value and performance has often been employed as a proxy for determining the governance capability of a company. However, attempts to determine the effectiveness of governance mechanisms based on these indicators have produced mixed findings. The study on boards of directors is one of them.” (Liu and Fong, 2010, p164) In many studies it is recognized as an “important institution for mitigating the agency problem that arises with absentee ownership…” (McIntyre, 2007, p1) An important function of board of directors is to reduce agency cost and handle conflicts that caused by the separation of ownership and management.

Besides the efficiency of mechanism of board of directors, the correlation between board of directors and firm performance has attracted a lot attention from both academy and practical business world. “In recent years, the debate has focused on the activity of the
board of directors, the most outstanding governance mechanism of the internal control systems.” (Lopez, 2005, p197). Board of Directors is the highest managing group of an organization, it was elected by shareholders. They are the representatives of shareholders, so their main responsibility is to make sure that the agents (top management) will be on behalf of and maximize the shareholders’ interest. When business of companies is growing, the development of the companies needs professionals to fit the requirement of management. In order to protect shareholders’ interests, it is necessary to establish an effective board of directors. “The board reduces agency conflicts by separating the management and control aspects of the decision making process…” (Panasian, 2003, p1) Efficient monitoring of board of directors can improve corporate governance so as to deal with agency problems and reduce conflicts between owners and agencies.

Due to the importance of the board of directors, it is worthy to investigate what kind of board is satisfied with the requirements of “good board” to improve mechanism of corporate governance and firm performance. Usually an “independent board” is recognized as one of characters of a good board. Ensuring independence of the board from management has been considered crucial to developing effective board structures and operation. (Liu and Fong, 2010, p167) Some codes and organizations have set principles or guidelines with regard to the requirements of board of director, for example, in August, 2002 New York Stock Exchange ratified some new requirements in order to enhance governance efficiency; and one of the requirements is to increase independent directors. (Panasian, 2003)

The researches on corporate governance have been started and developed in OECD countries in past some decades, and it is catching more and more attention in other countries. Many empirical studies examined the correlation between independent board and firm performance. However, the results of these studies on this topic are inconclusive, such as Panasian (2003) found that increasing proportion of outsiders on the boards is positive to improve firm performance and reduce agency problem, but Bhagat and Black (2000) find that proportion of independent directors and firm performance is unrelated. Even though there has not achieved a conclusive result with regard to the correlation between board composition and firm performance, researches on this topic has been very mature in western countries, especially in UK, the Netherlands, France and Switzerland, which were recognized as the best- performing countries in research by Albert-Roulhac & Breen (2005). These experiences offered tremendous inspiration to many less developed
countries, such as China, who is one of the fastest developing countries in the world and very eager to establish efficient governance mechanism.

1.2 Corporate governance in China

As a fast growing market, Chinese market is in the process of being regulated, but there is still a lot of improvement need to be done. Many previous studies obtained different results about the impact of board composition on firm performance with samples from different regions including China. The notion of corporate governance was imported into China in the end of 1980s, as Wei and Geng, (2005, p14) stated: “The authorities have adopted a top-down, legalistic approach to the development of corporate governance, based primarily on transplanting stylized features of the Anglo-American corporate governance system...” Even tough many efforts have been done to regulate the market, but the efficiency of governance mechanism in China is still not fit for requirements, and there is a lot of work to be done so as to make a better relationship between shareholders and management teams.

As what has been discussed, corporate governance has become a world wide important task and many developed markets have built good samples on how to establish and develop efficient governance mechanisms. With the development of “market-economy” in China, reformation of Chinese corporations is going into a new phase. In Chinese capital market, corporate governance is becoming more and more attention-getting. Since the Chinese stock market was established in the end of 1980’s, within 2 decades, it has become one of fastest growing stock markets in worldwide and it has obtained important achievement. In Ke and Isaac’s (2007), they explained that by the end of 2002 there were about 1.5 percent (about 20 million) Chinese residents of the total population had turned into active investors. However, there are also some notable problems need to be noticed and waiting for being solved. These problems are mainly behaving as a) the listed companies are not performing well enough according to the requirement of efficient governance mechanisms, b) ownership structure is inappropriate because over large percentile of shares are concentrated in only a few large shareholders, and c) monitoring is not efficient enough.

Since China has officially joined in WTO in 2001, Chinese financial market will be getting more opened to the world and accelerating the integration with international capital markets. It can be expected that within a certain period Chinese financial market
will get totally internationalized. “Competition would take care of corporate governance...” (Shleifer and Vishny, 1996, p3), with more fierce competition after joined in WTO, Chinese corporations face more challenge that they have to improve their mechanisms of corporate governance as soon as possible. If firms operate their business without efficient mechanism of corporate governance, they will probably lose their advantages in the international capital market. For its domestic market, it is also a crucial task to consolidate corporate governance so as to expedite reformation of state-owned and self-owned companies.

Researchers in China also had realized the importance of corporate governance. Researches and literatures on corporate governance have been increased in recent years. The earlier researches came up in 1990s and they had paid attention to theoretical analysis such as moral hazard in agency relationship, and description of ownership structure of Chinese listed companies. In recent studies there is a tendency that researchers started to emphasized on empirical analysis, and many of these studies were focus on ownership structure because it is an argument topic that if highly concentration of ownership structure is inversely related to firm performance. Some of Chinese local studies tried to find out the impact of ownership structure on firm performance, Wei and Geng (2008) introduced some representative articles in China such as Chen and Jiang (2000), they examined the impact of ownership structure on ROE (return on equity); Xu and Chen (2003) analyzed the impact of alteration of largest shareholder of company, alteration of CEO and board composition.

“In China, the board of directors constitutes an important internal mechanism in ensuring sound governance in Chinese corporate structure.” (Liu and Fong, 2010, p163) Yuan (2009, p10) stated that in order to protect the minority shareholders, China’s securities regulator, promulgated a regulation in August 2001 requiring each listed company to have at least one-third of the board to be independent directors by June 2003. This study will examine the features of “good board”, including board size and independence of board of Chinese listed companies, with state-owned companies and private companies. And then it is going to adopt a linear regression model to examine the correlation between board composition and firm performance based on a sample of 100 listed companies selected from Shanghai Stock Exchange.

To sum up, as a popular topic, corporate governance is becoming more and more attention-getting in many less advanced and booming markets including Chinese market.
“In the context of China, researches have unraveled similar inconclusive findings.” (Liu and Fong, 2010, p166) Li and Zhao (2000) randomly selected 91 Chinese listed companies in the year 1998 - 1999 to examine the correlation between board composition and firm performance. And after did a regression analysis, there was no significant association been found in their study. Qu (2007) found an “inverse U” shape relation between board size and firm performance from a sample of 126 Chinese listed companies in 2003. Inversely association between board size and firm performance also have been found in some Chinese local researches such as Sun and Zhang (2000), Nie (2005). Ke and Isaac (2007) obtained a positive correlation between ownership concentration and corporate performance in all the listed property companies in China in the year of 2000-2002.

This study will extend previous studies on this topic based on data of 100 Chinese listed companies in 2008. And it will conclude and present some current status of corporate governance and relative issues with regard to board composition. It obtains a newer data than previous studies by selecting sample in the year of 2008. For Chinese market has been changing fast after the stock market was established and especially after the year of 2006 this market became one of booming market, updating data is very meaningful for this study. For instance, total market value in Shanghai Stock Exchange (SSE) between the year of 2000 and 2005 were fluctuating within 22,856 billion to 29,400 billion Chinese Yuan (¥), but the year of 2007 was a milestone of Chinese capital market because the market value of SSE soared to 268,497 billion, which was 10 times much as it was in 2000-2005, then the total market value reduced to 96,875 billion because of financial crisis. Quantitative growth is only one aspect of Chinese economy’s change. Another important one is the change of attributes of companies. This study takes the attribute of company into account. For state-owned company, once the proportion of shares held by non-state shareholders exceeds the proportion held by state and reaches 50%, the attribute of company will switch into private company. Actually such a change is happening more and more often in Chinese market because of the huge growth of private companies ever since the beginning of companies’ reformation.

1.3 Purpose

This study has two main objectives. The first thing is to review the existing literatures on the correlation between board composition and firm performance, and in this part this study will conclude if proportion of independent directors of boards and other board
characters have impact on firm performance according to previous researches and existing literatures. The second purpose is to add to the growing empirical studies in corporate finance by examine the association between board composition and firm performance in Chinese listed companies.

This study will test the Kim and Nofsinger (2007) opinion which suggests that board size has a negative correlation with firm performance. Also according to the result in Panasian (2003) that a positive association existing between proportion of independent directors and firm performance, and conjecture in Kim and Nofsinger (2007) that larger proportion of independent will make a better monitoring of board of directors, this study will test the correlation between proportion of independent directors and firm performance of Chinese listed companies. By adopting Tobin’s Q as performance measurement and linear regression model I want to seek if there is any correlation between board composition and firm performance, as well as if increase of proportion of independent. This study will contribute to empirical economic literatures by examining the correlation between board composition and firm performance in Chinese listed companies, and contribute to Chinese research studies on boards of directors.

Business of companies is a complex organization which is interacting with various determinants, and many factors may work on firm performance. Efficiency of corporate mechanism is one of these factors. One of argued question with regard to board characteristics is whether a higher proportion of independent directors positive related to a better firm performance. There researches on board composition have been taken more and more notices in China, and it still yields mixed results in previous studies. To fill this gap, board composition needs to be researched more often in different time period and related to more characteristics of board. This study is focused on the mechanism of board of directors and it will learn previous empirical studies and examine the association between board composition and firm performance, so as to obtain a conclusion on if independent board has a positive correlation with firm performance in Chinese market. Besides, since board size is one of important configurations of board of directors, also the correlation between the number of directors in board and firm performance has been researched in many empirical studies by different measurement or samples, in this study board size will be assumed as a determinant may have an impact on firm performance and the relation between board size and firm performance will be examined. When it comes to listed companies in Chinese stock market, ownership structure is a debated
topic because of the heavily concentrated equity ownership in large state-owned shareholders, and it yield different results in many researches too. Because the sample in this study is from listed companies in Chinese stock market, ownership structure will be taken into account as an important determinant which may have a correlation with firm performance.

To sum up, this study will contribute to empirical economic literatures by examining the correlation between board composition and firm performance of Chinese listed companies, and contribute to Chinese local studies on boards of directors.

1.4 Research questions

In this study the description and analysis will be surrounding the issue of mechanism of board of director and firm performance; and it will answer these two questions,

• Is there any correlation between board composition and firm performance among listed companies in China?
• What is the association between board size and firm performance?
• Does ownership structure have an impact on firm performance?

1.5 Limitations

First, this study is conducted within Chinese listed companies, because the information which is necessary in this study is available in annual reports of listed companies and some other data also can be found in financial release. For the data selection, only listed companies in Shanghai Stock Exchange are chosen. So the results of this research may not represent all of companies in whole Chinese market, since the majority of listed companies are composed by state-owned companies, private companies are only playing a smaller part in Chinese security market, but actually they are getting stronger at a very high speed and becoming more and more important in market.

Second, due to the time limitation and some other objective limitation, the time horizon of sample is just within the year of 2008, which is just a certain year. Even though this choice made a newer data as sample, it can not represent a long durative time period. China is a fast changing market, especially after the year of 2006 it started to boom when huge amount of investors entered into equity market, and cooled down in 2008 because of finance crisis. So the result may be different if data are selected from some other time
The last but not least, board composition is one of most important determinants which can have an impact on firm performance, and characters of board encompass many aspects, for example directors backgrounds such as director’s experience, tenure, etc. But some of these indicators are not easy to be measured by math, or data and information are not available, thus in this study the notion of board composition is limited as proportion of independent directors to total number of directors in board, but other characters of board composition are not taken into account.
2 Theoretical Method

In this section the theoretical method chosen to lead this study will be presented and it will elaborate how this study is being conducted.

2.1 Choice of topic

As discussed in previous chapter, corporate governance is a current topic in China and I believe it will keep being attractive in the future. My interest in corporate governance started when I studied in this course in spring semester 2009, and with group members and I wrote a term paper of empirical studies on the relationship between board size and firm performance. Besides I have been paying attention to investing and management information about listed companies, but my knowledge about the efficiency of governance mechanism is limited, then I decided to learn and find more about the top management team- board of directors.

2.2 Pre-understanding

I had studied intermediate level courses in accounting and finance in China from 2001 to 2005. Before I started advanced level courses, I had been working as an accountant for 2 years. Even though the practical experience did not give me direct information either knowledge about board of directors, but it provided me some relevant awareness about how business are running and the business environment in China.

Then I have been studying advanced level courses in Umea school of business in recent two years. My theoretical pre-understanding is mainly from these previous studies. Throughout the study I increased my knowledge about accounting, finance and some basic knowledge about management and economics.

2.3 Theory about methodology and research philosophy

In order to get research goals and find out results of research questions, methodology leads appropriate research method to make sure researching process align correct guidance.

A first thing that needs to be examined is the philosophical approach about methodology, because it can influence a method holistically. There are two main philosophical
approaches named positivistic and interpretative (or objective and subjective; monotheist and idiographic; etc.). As Adam and Healy (2000) explained, positivist assumes the existence of only one reality independent from those who study it and which can be examined step by step by stating and confirming or disproving hypotheses. The interpretive approach on the other hand, claims that realities are constructed by the researchers and are relative to individual projects taking place at a particular point in time in a particular place. Since corporate governance is originally from western developed countries, also year by year the theories and studies on this topic have been approved and improving. Just a couple of decades ago China first started to have lessons from developed countries, so I believe that there are similarity on this issue between China and developed countries. And the aim of this thesis is to examine the association between board composition and firm performance. For these purposes, it has been classified into positivist approach.

2.4 Scientific Approach

According to many available literatures in methodology, there are two different ways to carry out the empirical approach: a qualitative and a quantitative method. They are two different approaches with respective advantages and applicability.

Qualitative approach provides a great way to discuss and get details answers. Proponents of qualitative research make strong claims about the strengths of their approach, including greater ecological validity, richer and more descriptive accounts of real-world events and greater ability to uncover processes and mechanisms in natural settings. (Lance and Vandenberg, 2009, p 219) Usually the interviews are included in qualitative methods. It is a most appropriate method to get a reflection of experiences from practical work and points.

A quantitative approach with questionnaires or available data would be most likely to give an objective conclusion about the assumption of the study. Compare with the advantages of qualitative approach, quantitative approach utilized the scientific method such as observation and description of some phenomenon, the formulation and statement of hypothesis and so on. As well as it contributes to advancement knowledge. (Lance and Vandenberg, 2009, p 227)

For this research, quantitative method will be more suitable. First reason is that the
sample will be consisting of many listed companies’ annual reports. Second, the data will be in similar categories, and great individual knowledge about companies will not be required.

There are usually two broad research approaches: deductive and inductive. Bryman and Bell (2007) in their literature present these conceptions like this: “Deductive theory represents the commonest view of the nature of the relationship between theory and research..., deduces a hypothesis that must then be subjected to empirical scrutiny...Inductive researchers often use a grounded theory approach to the analysis of data and to the generation of theory.” (Bryman and Bell, 2007, p7&11) With regard to this thesis, it does not aim at developing a new theory or get a deeper understanding in a theory, but to test a theory, because the investigating and data analysis are built on existing theories. And then it is narrowed down into more specific hypotheses which can be tested. So the deductive approach is more appropriated for this research.
3 Corporate governance and board of directors in Chinese listed companies

In this chapter it will provide a detailed illumination about the status of Chinese “Socialist market economy”, development of stock market, status of listed companies, and problems which exist in such a fast-growing market, so as to prove the reality that it is necessary to improve corporate governance mechanism.

3.1 “Socialist market economy” -the development since 1979

Chinese market had been under planned economy from 1949 to 1979. During that period, state-owned enterprises had a dominant role in the economy and private companies were not. An important event in Chinese economical history is the economical reformation of the economy which started in the end of 1970’s.

Reformation of economy aims at using resources more efficiently and it started to encourage achieving economical profit and making corporations more activated in competition. The phase between 1979 and 1992 was a primary step of reformation, when the market economy and planed economy existed at the same time. The fast growing economy of China in that era did not win much praise, because there is always a huge population in China and it caused a lot of problems. This unique situation made China hard to borrow an available method to deal with the problems which were coming along with fast development. However, the achievement was still very noticeable. “Chinese economic reform began in 1978, and the past nearly 30 years have witnessed China’s economic miracle; with average annual growth at around 9 per cent and gross domestic product (GDP) quadrupled, China has become the largest developing and transitional economy in the world.” (He, 2007, p287) Between early 1990’s and 2000, Chinese market had never stopped making great effort on improving market economy. Some numerical evidence can prove the development and transformation in this period. “China has maintained a relatively high rate of economic growth (average about 8 percent per year) since 1998. In 2001, China surpassed Italy in GDP (Gross Domestic Product). As of 2002, China became the sixth largest economy in the world.” (Hong, 2006, p2)

In 2001, China joined to the World Trade Organization (WTO), which was a great step for the development of Chinese economy because it made the country formally join to the globalization. Since the year of 2001, China has kept reducing the trade barriers. Rinaldi-Larribe (2009) cited Cadillac (2003) to explain that China has managed to
diversify its exports from textile to electronics (in 2002, the share of high-tech products in total exports reached 75%). Besides, state-owned enterprises (SOEs) now are producing just less than 25% of the industrial production, compared to 66% in 1987.

“Since 2000, foreigners are allowed to own companies. These foreign owned firms (FOFs) contribute to 30 per cent of industrial production and 50 per cent of external trade.” (Rinaldi-Larribe, 2009, p5) To some extent, the teeming of foreign companies in Chinese market was a great advancement in the processing of reformation of economy. Because it brought more pressure and competition to Chinese domestic companies, it hastened Chinese market and local companies to improve their management. However, even competition can be as one of the strongest drivers, Chinese market is till standing at the primary step. Under an atmosphere of globalization, foreign investors brought huge benefit to Chinese market such as capital, advanced management experience, new technique and a more multiple capital market.

The sustaining fast growth of Chinese economy won the attention from the world. Since earlier or later of the year of 2004, China has started to face the pressure about under-value of Chinese Yuan, because Chinese Yuan has been heavily undervalued due to the fast growing economy and export. In July of 2005, Chinese officials revalued their currency by 2 per cent vs. the US dollar but some economists believe that Chinese Yuan still remains undervalued by 20 to 30 per cent (Rinaldi-Larrib , 2009, p4). According to Rinaldi-Larrib (2009) cited comments from EU with regard to the achievement of China since it stated the opening market in 1979, “in September 2008, though, the EU described the Chinese economy as ‘an increasingly modern and market-based system’, and has recognized that China only fulfilled the criterion on the influence of state intervention on prices and costs, but had made progress on all other criteria.” (Rinaldi-Larrib ,2009, p4)

3.2 Problems under the high speed development of economy

By the year of 2007, China had become the forth largest economic powerhouse in the world after the USA, Japan and Germany with a total GDP of $3280 billion. (Yuan, 2009, p7) However, are there any side effects coming along with such a booming economy? This is a debated topic among economists. Some of them think the economy of China has already been over-heated that must bring some negative effects such as bubbles and inflation. While other of them holds the opposite view that it is not over-heated because
the relationship between demand and supply in Chinese market is still keeping a balance. Anyway, we are always trying to seek a way to avoid over-heated economy and also avoid a less-perfect method to decelerate the speed of developing. In this study, I pay an attention on the problems and status of corporate governance of listed companies, as well as Chinese stock market. It will be presented in the following section.

3.3 Chinese stock markets

In 1981, it started to allow various financing forms and facilities to join into Chinese market. With the thorough economical innovation, Chinese stock exchange market was officially established in the early 1990s.

Through the developing and transforming process in past two decades, Chinese stock exchange market has become a fast growing market with great potentials. From the report by Lu (2006), in the top 100 companies listed in Chinese security market, 31% were listed in Shanghai Stock Exchange, 23% were listed in Shenzhen Stock Exchange, and 46% were listed in Hong Kong.

Figure 3.3.1 from the investigation paper by Wei and Geng (2008) shows a typical Chinese listed company ownership structure.

**Figure 3.3.1 Typical Chinese listed company ownership structure**

Note: SOEs(state-owned enterprises)

(Source: Ownership structure and corporate governance in China, Wei and Geng, 2008, p3)
Shares in Chinese equity marked include A-share, B-share, H-shares, state-owned share, and Legal Person Shares. An article published by “Norges Bank” explained every type of equity,

- A-shares are equities that can primarily be owned by Chinese private individuals;
- B-shares are quoted in US or Hong Kong dollars on the Shanghai and Shenzhen domestic stock exchanges; After 2001, both foreign and domestic can hold B-shares.
- H-shares are issued by the largest state-owned Chinese companies, and the Chinese state has holdings of between 60 and 70 per cent in these companies; (Note: H-shares are registered in main-land China, but listed in Hong Kong, individuals have not been allowed to own H-shares till now)
- State shares are shares owned by the Chinese Ministry of Finance or government authorities at local or provincial level;
- Legal person shares are shares owned by Chinese companies or institutions, mainly public sector.


It needs to be noted that A-shares restrict within domestic trading done by Chinese citizens and B-shares can be sold to foreign individuals and entities. While some Chinese companies issue both A- and B-shares, the number is relatively small. Additionally, H-share companies are listing on Hong Kong and other foreign stock exchanges.

(Liu.2004, p2) Lu (2006) represented that capitalization of Chinese stock market was composed of 29.91% by A-share, 3.02% by B-shares, 27.90% by H-shares, 21.33% by legal person shares, and 16.84% by other types of shares at then. All in all, Chinese stock market has experienced the process from its birth to booming, and now it needs to be better regulated and require more advanced governance mechanism.

### 3.4 Participants of Chinese stock market

It is not that long period since the Chinese stock market was established, but stock market has been growing rapidly, and especially in a few resent years it has become a booming market. According to reports by Shanghai Stock Exchange and Shenzhen Stock Exchange, so far, listed companies has reached the amount of more than 1300, however, compare with the level of the economy development, the quality of stock market needs to be enhanced as soon as possible.
The stock market is mainly composed by companies, investors, agencies and monitoring institutions. For every component of mentioned, there are some problems existing, at least for current phase of developing. These problems have been discussed very often in professional comments and research. In the following part the existing problems will be summarized according to comments on website of Shanghai Stock Exchange and some articles such as Wei and Geng (2008) and Lu (2005).

A. Listed companies

a. Heavily concentrated ownership structure results in the weakness of internal monitoring. At the present time, no matter in state-owned companies or private companies, there is a phenomenon that shares are frequently held by a few large shareholders. And state-shares are not allowed to be traded among individuals, either not issued publicly;

b. The responsibilities of independent directors are inexplicit. It is not a long time since the conception of “independent board” has been imported, thus the backward relevant regulations caused the inexplicit responsibilities. (Wei and Geng, 2008)

B. Investors

Under the current legal system, Chinese stock market has not been mature and high level regulated, so motivation of the speculation from investors is pretty strong. Between the institutional investors and individual investors, usually the latter is the one who suffer much more loss. (Lu, 2006, Wei and Geng, 2008)

C. Agencies

The agency-services are developing at a high speed, even though it is just within a short period. Still it is under the current legal system, the independence and fairness are not advanced, which made the reputation of agencies is not very good because some frauds happened time to time. (Lu, 2006)

D. Monitoring institution

In a few past decades, the supervision of securities has changed from regional supervision to central supervision. However, similar with what needs to do for agencies, the independence of supervision needs to be improved too, so as to protect investors and improve function of market. (Lu, 2006)
3.5 Existing problems in Chinese Security Market

No matter according to the amount of listed companies, or the overall market value, if it be measured only by the scale of market, Chinese security market is possible to be one of the most important security markets of the world. However, the economical efficiency of Chinese security market has not been qualified. The structure of Chinese capital market has not been satisfied by publics, and it lacks of financial derivatives to make a strong risk management. Compared with the multinational companies in America, for example, a large amount of Chinese listed companies do not have a long history, either are not competitive enough. Standing on the point of market arrangement, large state-owned companies in Chinese stock market are representative of the major strength of economy growing.

3.6 Current status of Chinese companies

There are always a lot of reports and comments keeping presenting information about how fast and important achievements that have been made by these Chinese listed companies. All the achievement seems to present a huge contribution to the economy. There is no doubt that Chinese listed companies have made a great contribution to the reformation of Chinese economy. However, some comments pointed out that it is necessary to consider some other factors beside the scale of enterprises and index of profits. These factors include a) how much are these companies suitable for markets; b) the ability of innovation; c) technique updating, d) degree of internationalization and e) the responsibility of enterprises.

From the list of top 500 Chinese companies, the majority of them are state-owned enterprises, which occupy a position of monopolization in certain fields or industries, and also they have advantage in resource and policies. However, those new technology-companies, new resource companies, who can produce name-brand in international, do not dominate on the list. This status makes us have to think about if these enterprises on the list can make such a great achievement in case of they only rely on their own operation, but without any advantage in resource, policies and markets. Actually in recent years many Chinese large firms have been going abroad one after another, but the outcome has not always been outstanding. The performance of these large companies can be concluded as “successful at home but giving around in overseas”. This reality can more or less explain the doubts what has been mentioned above.
On the other hand, many products from overseas are inhibiting in Chinese step by step, by right of their innovation and name brand. Compared with them, Chinese domestic factories only resort their advantage in low price and cost. Chinese enterprises need to set aim at chasing long-term development instead of only chasing short-term profit. This also request investment on technique research and development, and support them with advanced management methods.

3.7 Status of corporate governance in listed companies

Many advanced markets have established well governance system, but “In less developed countries, including some of the transition economies, corporate governance mechanisms are practically non-existent.” Shleifer and Vishny (1996, p3) Corporate governance is not only a crucial factor to motivate growth of corporations, but also related to recession or boom of a nation’s economy. For instance, after the Asian financial crisis in 1998, researchers and economist started to research the correlation between corporate finance and financial crisis, and there was an opinion that Asian financial crisis was a “corporate governance crisis” in substance. Corporate governance has a close relation with the security of the financial system because when investor’s benefit can not be protected sufficiently by the weakness of corporate governance; investors will turn to short-term speculation instead of long-term investment. This make bubbles to be full of market, thus, bubbles can not be lasting long, then breaking of bubbles initiates financial crisis.

“Corporate governance is an alien concept for China. The establishment of the China company law system came later than western nations’ corporate law system. Since 1992, China has made substantial progress in several areas of corporate governance.” (Yuan, 2009, p1) As one of largest fast-growing market, during a few past years, the Chinese Government has been improved its corporate governance policies so as to prepare Chinese companies to compete with their foreign counterparts. (Xiao and Yuan, 2007) However, compared with the fast growth of the macroscopically economy of China, corporate governance is not growing up in time. “Although China’s government and companies have made substantial progress in recent years to improve corporate governance, many problems still exist.”(Yuan, 2009, p8) Even though “stock system” has already become the main modality of establishing corporation, modern corporation mechanism in China is still not mature. Theories and methods had been imported from advanced markets, but for Chinese corporations, in practice corporate governance has
been noticed just on its frame, not the real essence. Despite more and more companies choose to be listed abroad, the high cost of capital and hardship of being listed are basically from unregulated and backward governance mechanism.

Yuan (2009) gave some numerical information that can express the status of corporate governance in China. It sited a 2004 survey by the International Institute for Management Development which compared each country’s corporate governance practices. The average of China’s score was 41.5, which is fairly low on the list of 60 economies. It also provided another survey in 2003, which the rank of China was even lower at 44th out of 49. In the governance report of listed companies by Shanghai stock exchange in 2003, it described main problems of corporate governance among listed companies. They can be summarized by the following aspects,

a) Ownership structure is heavily concentrated;
b) Mechanisms of law are distempered. There are boundaries when investors appeal to judicatory relief;
c) Insiders-controlled, which means the un-separation of administration and superintendence;
d) Market-oriented external governance is undergrowth makes resource allocation inefficient;
e) Deficiency of public consensus and superintendence.
(Shanghai Stock Exchange, 2003)

3.8 Ownership structure

The most noticeable feature of ownership structure in China’s listed companies is heavily concentrated by state-owned shares. Yuan (2009, p9) provided us a numerical evidence happened at the end of 2000, which the total shares in both the Shanghai Stock Exchange and Shenzhen Stock Exchange were 374.628 billion shares, and only 35.62 per cent belonged to individual shares while state shares and legal person shares were 37.35 per cent, and 27.03 per cent shares, respectively, with a total of 64.38 per cent non-tradable shares.

Majority of listed companies were originally state-owned companies or institutions which were invested by state. Chen and Chun (2005) concluded an essential feature of the listed company in China was that the proportion of shares owned by largest shareholder is very high in total shares. Especially, Chinese government retains a large portion of
state-owned shares and plays a decisive role in listed companies. As a consequence, the phenomenon in Chinese market is not rational oriented. Vast common stock shareholders have to play the role of undertakers of risks, which are caused by the business. However, business is run by companies, but the shareholders with common stock are not possible to participate in the management as shareholders. In contrast, shareholders with state-shares and H-shares have the right to manage companies but they do not have to undertake the risks from the market. Obviously this phenomenon is not reasonable either fair. A common opinion on this issue is that reducing the issuance of H-share is not only good to accelerate strategic reforming of state-economy, but also improve the structure of corporate governance and quality of management so as to protect the benefit of investors. Moreover, it makes great sense to establish efficient monitoring and appropriate resources allocation. However, opponents acclaim that excess decentralization of ownership will make each individual shareholder have less motivation to governance companies, which is possible to lead lapse of corporate governance.

With regard to the argument about if there is a significant correlation between ownership structure and firm performance and market value, academics have not obtained conclusive finding. The findings are different amongst samples, even in developed countries, where regulations for protecting investor’s rights and interests work very well, as well as functions of capital market are efficient, they are still difficult to recognize the impact of ownership structure on changes of firms’ value. Some researches found an inversely correlation between ownership concentration and firm performance like Kapopoulos and Lazareto (2001), and Jiang (2004) found an inversely correlation between firm performance and ownership concentration.

To sum up, in order to maximize the value of shares, corporations have to exert the market competition mechanism and make good movements between managers and other participants in market so as to establish efficient corporate governance, which can shape the situation of maximization of shareholders and other relative parts as well as stakeholders’ value maximization.

3.9 Independent board system in China’s list companies

Generally speaking, China Securities Regulatory Commission requests that independent directors have the obligations of being reliable and diligent. Independent directors should be responsible for their line of duty to stick up for the benefit of whole company,
especially protecting medium and minority shareholder’s benefit. Independent directors should take their duty absolute independently, which means they should not be affected by large shareholders, actual controllers or other units and individuals who have close relationship with companies management. In principle independent directors can take positions in no more than 5 listed companies at same time, and they have to insure they have sufficient time and energy to take their duties.

According to Chinese company law, companies should have two-tier board, which means there is a supervision board besides board of directors. Independent directors are important symbol of an independent board. In the year of 2001, China Securities Regulatory Commission officially issued guidance about listed companies establishing independent directors system, this system has been developing gradually. “The ‘Code of Corporate Governance for Listed Companies in China’ requires that at least one-third of the board be filled by independent directors by June 30, 2003.” (Liu and Fong, 2010, p166)

For Chinese companies, “independent directors system” is a system that referred from US and UK. And as a result it did work on the objective of protecting small investors in the process of revolution in order to push companies qualified to be listed on market. However, due to the heavily concentrating ownership structure and weakness of monitoring, actually corporations are still actually controlled by insiders. In many companies, “the major shareholders are the ones who nominate candidates for the independent director positions” Yuan (2009, p 10), for this reason, it is not probable for these candidates to be truly independent because they tie to the controlling shareholders. Plus, to some extend, the design of independent has not been very advanced, which makes the “independence” hard to maintain in practical management work. “A central flaw of corporate governance is that boards of directors frequently are ornamental and provide negligible oversight.” (Yuan, 2009, p139)

In China, state-shares and H-shares occupy dominated position in major of listed companies, which caused voting mechanism make little sense, which is described as “inefficient zone”, because board may have a tendency to hire a management team who is only working for the interest of board so as to reach the aim of controlling corporation. Currently, majority of directors and managers are over powerful, when so much as they are board chairman and general manager at the same time. It results in the situation that
general managers replace part of authority of board, like self-management, self-estimation, which is actually inefficient in corporate mechanism.

“Code of Corporate Governance” for Listed Companies in China which was issued by China Securities Regulatory Commission (CSRC) in 2001 regulated the board of directors in aspects of election procedures, including the duties and responsibilities of directors, duties and composition of the board of directors, rules and procedures of the board of directors and independent directors. With regard to independent directors it defined the conception of independent directors as “Independent directors shall be independent from the listed company that employs them and the company's major shareholders. An independent director may not hold any other position apart from independent director in the listed company.”(CSRC, 2001, p6) It limited the duties of independent board in a)due diligence toward the listed company and all the shareholders; b)earnestly perform their duties in accordance with laws, regulations and the company's articles of association; c) earnestly perform their duties in accordance with laws, regulations and the company's articles of association; d) protect the overall interests of the company, and be especially concerned with protecting the interests of minority shareholders from being infringed; e) carry out their duties independently and shall not subject themselves to the influence of the company's major shareholders, actual controllers, or other entities or persons who are interested parties of the listed company; f) each listed company to have at least one-third of the board to be independent directors. (CSRC, 2001, p 6-7) These regulators basically are accordance with sprit for corporate governance mechanism by OECD, which is evidence that Chinese market has a strong will to catch up the steps so as to make efficient capital market.

3.10 Summary of corporate governance of Chinese listed companies

“Although China's governance and companies have made substantial progress in recent years to improve corporate governance, many problems still exist.” (Yuan, 2009, p146) Some noticeable and argumentative problems can be concluded as follow,

First, the board of directors are actually only cared by major shareholders, there are not many shareholders attending the meetings and caring about the development of the companies. It is hard for them to find what suggestions have been mentioned and discussed in previous conferences and how the existing problems can be solved;
Second, from the opinion in the report by Lu (2006), companies were not concerned enough about the long-run motives of employee. It gives a chart about the plans of motivation of employee; we can see that only 14% companies have inspiring plans such as bonus, options and other rewards (Figure 3.10.1)

**Figure 3.10.1 Incentive programs in listed companies**

![Incentive programs in listed companies](source: Corporate governance in Chinese listed companies, Lu, 2006, p7)

Figure 3.10.2 from Lu (2006) shows that the proportion of total stock market value to GDP was keeping increasing from 1995 to 2000, but since early or later of 2001 this proportion started to keeping going down.

**Figure 3.10.2 Proportion of shares to total market value in GDP**

![Proportion of shares to total market value in GDP](source: Corporate governance in Chinese listed companies, Lu, 2006, p2)
Figure 3.10.2 tells us an interesting phenomenon that all aspects of Chinese economy had been growing fast but total market value of stock was shrinking. However, maybe it is not appropriate to evaluate the growth of stock market only according to this measurement, because it is also evidence that small companies and private companies are making increasing contribution to the market value under a whole tendency that the economy is growing fast and GDP keeping growing even under global financial crisis.

But there perhaps be some problems in security market and listed companies. As mentioned, in Chinese stock market, large listed companies are mainly composed by state-owned companies and the ownership structure of state-owned companies is different from other types of companies. First, most shares are non-tradable; second, these non-tradable shares are usually held by only one big shareholder; third, tradable shares are over dispersed and institutional investors hold a very low proportion; last, the largest shareholder is usually institutions instead of individuals. Such a ownership structure causes some negative results, such as a) over much interference by shareholders with state shares, b) public shareholders being lack of direct controlling of firms, and c) lack of market pressure when hostilely take-over absent, and the distortion of price in second market.

To sum up, the improvement of corporate governance of Chinese listed companies is good but not prominent. Government strongly advocate to improve corporate governance of state-owned companies and other listed companies, but the effect is not good enough so far.

Figure 3.10.3 shows 5 aspects of corporate governance score in Lu (2006), we can find that the differences amongst these 5 aspects are noticeable. Disclosure and transparency won the highest score in these 5 aspects in both year of 2005 and 2006. Two of lowest score are from rights of shareholders and role of stakeholders. This result may give a hint of how urgent it is to improve governance mechanism and hasten the function of board of directors, so as to protect the right of shareholders and make better use function of stakeholders. As what has been discussed in previous chapters, not only in advanced market, but also in China it is a popular topic of if there is a correlation between board composition and firm performance and if an independent board makes a better firm performance.
Figure 3.10.3 Evaluation for corporate governance

Source: Corporate governance in Chinese listed companies, Lu, 2006, p4)
4 Theoretical framework

This chapter presents established theories regarding corporate governance, and highlights the characteristics and functions of board of directors. These theories help us understanding the mechanism of corporate governance. Previous empirical studies will be presented so as to generate the necessary framework for analysis of this study.

4.1 Corporate governance

4.1.1 Definition

Shleifer and Vishny (1996, p7) gave an explanation that corporate governance is required when the suppliers of finance, such as shareholders and the owners of corporate, not run the firms by themselves, but hire a management team to be responsible for the business and activities of the firms. Under the condition of the separation of ownership and management, the “agency problem” came up. “The issue of corporate governance arises when one departs from an orthodox model of the owner-managed firm, and moves towards the separation of ownership from decision-making control.” (Conyon & Peck, 1998, p292) The conception of corporate governance is defined extensively by different authors. Basically it is recognized and concluded as an institution for owners of companies to ensure their possible maximum benefit will be protected, when they grant agencies (management team) to operate business of companies.

The separation of ownership and management caused a situation that the goals between owners and managers possible not aligned. Managers are supposed to pursue profit only for shareholders, while the separation of ownership and management it is possible for them to satisfy their own serving in forms of power and fame. In this case, shareholders need to efficiently monitor behavior of management team so as to ensure that managers peruse profit only for shareholders.

Nowadays efficient mechanism of governance is required by both advanced and developing markets. “Economies with efficient economic policies and stable political system are a big draw among the investors” (Malla, 2004, p6). From the definition of corporate governance, we can comprehend that what does corporate governance do and how it can be helpful to build a better investing environment for investors. Shleifer and Vishny (1996, p2) defined “corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment.”
(Kim and Nofsinger, 2007, p7) defined corporate governance as a system which is “integrated and complicated”. “The potential incentives for executives, auditors, boards, banks, and so on, to misbehave are intertwined.” Yuan (2009) defined corporate governance as “institutions that influence how business corporations allocate resources and return” and “the organizations and rules that affect expectations about the exercise of control of resources in firms...the system of rules and institutions that determine the control and direction of corporation and that define relations among the corporation’s primary participants” (Yuan, 2009, p140) This definition emphasizes on the interlinking relationships among all the business participants, which is an updating conception because in resent years the “stakeholder theory” is getting more and more attractive. According to this theory, it is reasonable and necessary for corporations to pay more attention on all the business participants rather than just on the relationship between owners of companies and the management teams.

To sum up, according to many books and articles, such as Kim and Nofsinger, Shleifer and Vishny, and other researches, notion of corporate governance may have been defined and discussed by different words, but as a whole, it can be concluded as that under the separation of ownership and management, there is a series of organizations composed by corporations, controlled mechanism, policies, laws, and institutions. In nowadays, mechanism of corporate governance is reaching a broader range because of the emergence of stakeholder theory. It involves not only the relation between the company and its owner, but also takes all the business partners such as employee, customers, providers into account. Corporations have to solve the problems such as a) whom do they serve for, b) who will control, c) how to allocate the risks and income among participants, etc. Therefore, corporate governance is crucial to operate a long-term good business for all the corporations.

Besides, the concept of corporate governance should not be limited only within listed companies. As a matter of fact, the mechanisms of corporate governance should be acknowledged important in every single corporation and capital market, because companies need to improve the relationship between shareholders and management team, and also balance the correlation between shareholders and other relevant business participants such as employee, providers, consumers and other participants. As far as it goes, Chinese firms, especially for state-owned companies, should improve corporate
governance mechanism through the reformation in order to establish long-term development for all the corporations and capital market.

4.1.2 Mechanisms and controls

“People who sink the capital need to be assured that they get back the return on this capital. The corporate governance mechanism provided this assurance.” (Shleifer and Vishny, 1996, p3) The mechanism of corporate governance can be categorized into internal corporate governance controls and external corporate governance controls. The function of internal corporate governance controls is usually established to ensure the correctness of important decisions by optimizing the rights of directors, as well as to constitute and bring in effective plans on motivation of management. In literature of Kim and Nofsinger (2007, p11), “solutions to agency problems tend to fall in two categories: incentives and monitoring. The incentive solution... ties an executive’s wealth to the wealth of shareholders so that everyone shares the same goal.” They also introduce the types of compensation such as salary and bonus, stock options and stock grants, etc. The functions of external corporate governance controls mainly include all kinds of markets, such as products market and capital market. The external markets can provide valuable information and reference to management for their analysis and other uses.

Board of directors also plays the role of monitoring and controlling. “Due to its monitoring role, the board of directors is an important tool to reduce agency costs and hence it has a direct impact on corporate performance through its main dimensions such as structure, size, and composition.” (Alshimmiri, 2004, p1) Directors have the right and obligation to monitor and evaluate CEO and senior management team. “Managers may not act in the shareholder’s best interest, which demonstrates the need for monitors ...The monitors inside a public firm are the board of directors who oversee management and are supposed to represent shareholders’ interests.” Kim and Nofsinger (2007, p4-5) The greater the degree of director control, the greater is the benefit to be derived from the directors’ ability to limit the agent incentives that allow managers to pursue their own objectives rather than those that are in the best interests of the firm. (Bennett and Robson, 2004, p3)

Based on the understanding about this issue, it can be concluded that good corporate governance requests an outstanding combination and interaction of internal mechanism and external mechanism, and they promote one another. Internal mechanism is capable to
ingeniously react to the information which provided by external mechanism, while the external mechanism can solve the problems caused by information-asymmetry between owners and management teams. Taking benefit into account, good corporate governance can appropriately deal with all the relations among stakeholders so as to achieve the maximization of firm’s value.

From what has been discussed above, the conception of corporate governance is not only equal with the meanings of management, because it is not a simple correlation between managing and being managed, but it is emphasizing on governance which all the relevant business bodies can participate in. It desires harmonious relations among every aspect in the mechanism and relevant system, so as to achieve the maximization of firm’s value in a long-term period.

4.1.3 Duties of Board of directors
The board of directors is playing a role as a trustee of shareholders to represent the interest of shareholders. It has functions to reduce agency problem through monitoring management team. Molz (2007) defined the role of board of director as “a body entrusted with power to make economic decisions affecting the well-being of investors’ capital, employees' security, communities' economic health, and executives' power and perquisites.” The detailed responsibilities of board of directors are regulated in various regions by corporate charts. According to Kim and Nofsinger (2007), the main responsibilities of board of directors usually involve in the following tasks,

- Hire, evaluate, and perhaps even fire top management, with the position of CEO being the most important to consider;
- Vote on major financial decisions;
- Vote on major operating proposals;
- Offer expert advice to management, and;
- Make sure the firm’s activities and financial condition is accurately reported to its shareholders.

4.2 Board configuration
4.2.1 Board size
Board size refers to the number of directors in board. The number of board members are varying from country to country, or corporate to corporate, because of the differences in
culture, regulation, and corporate ownership structure. Companies are seeking for the suitable scale of board of directors according to the local regulations and demand of management development. For example in China Company Law regulates that the number of directors on boards can not be less than 5 members and there must be at least 3 independent directors on boards of listed companies. This requirement results in a tendency that many Chinese listed companies hold a board of directors with 9 members.

There are advantages in both small board and large board. In recent years, a number of empirical studies conducted the correlation between board size and firm performance. And most results of these findings favored in the smaller board because firms with smaller board usually have better performance. But Dalton (1999) thinks the larger boards are good at effective external linkage.

4.2.2 Board composition and ownership structure

Korac-Kakabadse (2001, p2) concluded board characteristics encompass director’s background, such as director’s experience; tenure, functional background, independence, stock ownership and other variables that influence director’s interest and their performance.

In many researches independent board is regarded as one of the features of a good board. In order to build efficient governance mechanism, independent board is preferred because it is logical that directors can make fair decision when they are independent from management. For a better comprehension of independent directors we need to have a conception of executive directors. As described by McCabe’ (2008, p7), the conception of executive director is defined as “either on the board in an executive capacity or in the capacity of CEO or the combined role of CEO and chairman”. While independent directors are not related with CEO or any other senior managers which make them more unbiased when make decisions. McCabe’s study concentrated on Australia companies, it defined independent board has “independence in the relationship with the organization was an essential feature of demonstrating independence” (McCabe, 2008, p7). McCabe (2008) referred Bosch (1993) with regard to the requirements of being “independent directors”, and these requirements include “not being a substantial shareholder, not being employed in any executive capacity, not retained as a professional advisor by the company, not a significant supplier to the company and having no significant contractual relationship with the company other than as a director”. These directors are also
described as “outsiders.”

The association between ownership structure and firm performance is a popular and important topic in many studies on the field corporate governance. In the context of China, issues on ownership structure have been investigated a lot by local researchers. In Chinese stock market, there is a highly concentration of ownership structure. The status of large proportion of shares being held by a few large shareholders has caused many arguments on if it is correct to reduce the level of concentration. Theoretically, over highly concentration of ownership structure is not beneficial to make a better firm performance. Shleifer and Vishny (1997, p. 758) states “large investors may respect their own interests, which need not coincide with the interests of other investors in the firm, or with the interests of employees and managers”. However, empirical studies on this topic have got inconclusive findings. In this study ownership structure is yield as control variables because it is one of important determinants which have impact on firm performance.

4.3 Literature review

4.3.1 Empirical research on the relation between board size and firm performance

Empirical studies on the correlation between board size and firm performance are plentiful across western countries. Conyon and Peck (1998) conducted a study in five European countries (UK (481), France (60), Italia (33), Netherland (22) and Denmark (21)); the sample is composed by large listed companies with the consistent data from 1990 to 1995. Also the study included the countries with both one-tier board and two-tier board. In this study they found that the board size and the company performance are inversely related in all of the five countries.

And the studies with samples from OECD (Organization for Economic Co-operation and Development) countries also got the negative correlation between board size and firm performance, for example, Pablo and Lopez (2005) gathered samples from 450 non-financial companies in 10 OECD countries, and found there was a negative impact of board size on corporate performance.

Mohamed (2008) in his empirical study “Board of directors’ Size and Performance in Banking” found a different result from the previous researches with samples from wide industries. This study examined the correlation between board size and firm performance
only in banking industry. Its sample is composed by 174 banks and savings-and-loan holding companies, over the period of 1995-2002. Surprisingly this study got a positive correlation between board size and firm performance. It suggests that it is possible there is an exception among the common conclusion in most literatures of the smaller boards of directors is more effective when the samples are from some special industries.

4.3.2 Research on the association between proportion of independent directors and firm performance

Theoretically, both inside directors and independent directors have their own advantages in board governance mechanism. Inside directors can obtain a better understanding of companies operation because they are close to information and superior to make decisions more correctly. And independent board is usually recognized as one of important determinants of good board because of its fairness and other merits. Many researches on the subject with regard to the mechanism of board of directors have obtained findings concerning the association between proportion of independent directors and firm value or firm performance. Some evidence support the hypothesis that independent directors is improving board performance; some got the result that an independent board had a reversely impact on management performance, other evidence suggest there is no significant relation.

The relation between board composition and firm performance has been examined in numerous studies. Results of relation between proportion of independent directors and firm performance mainly can be categorized into these 3 groups,

1) The results indicate that the independent board benefits the firm’s performance. Many available theories and researches agree with the opinion that independent board is a determinant of good board. For example, Petra (2005) found the results that outside independent directors have a tendency to strengthen the efficiency of board of directors. Panasian (2003) found increasing the proportion of outsiders on the board is more beneficial for firms who are likely to have agency problems in Canadian companies with a sample of 300 listed Canadian companies.

2) Some evidence suggests that there is a negative correlation between independency of board and firm’s performance. Linck (2008) think that smaller and less independent boards are more suitable for companies with high growth opportunities, high R&D spending and high stock return volatility. However, large firms usually have larger boards with more independent directors. They also make a point that companies have
more independent directors in boards when it is easier for insiders to extract private benefits or when the CEO has a greater influence on the board. McIntyre (2007) tested the relationship between key variables of board composition and firm performance for all the companies included in the Canadian TSE 300 composite index. This research obtained a result of negative correlation between firm performance and the average amount of outside board.

(3) Some studies obtained the conclusion of there is no significant relation between firm performance and board composition. Postma (2001) explained that there is a two-tier board structure in Netherland, and in this study the authorities examined the impact of both management board and supervisor board on firm’s performance. They picked 94 Dutch listed non-financial firms from 8 industries as cross-sectional data. The findings proved that there no evidence on the relation between size of management board and firm performance, negatively association between size of supervisory board and firm performance, and negatively association between number of outsiders and firm performance.

However, the researches and argues on whether an independent board has a positive impact on firm performance are keeping going on. Even in OECD countries where corporate governance has already come into being a mature theory and formed practical mechanism, it is still not clear that how much value of independent board is. One of the most famous opposite example is the Enron scandal. “Enron had an exemplary board by the corporate governance standards of the day, with a larger than average number of independent directors and with greater incentive compensation for directors. Nevertheless, Enron’s board clearly failed to protect Enron’s shareholders.” (Becht, 2002, p74) And there is an opinion on independent board which is “it does not apply well to concentrated ownership structures”, claimed by Becht and Roell (2002, p26). It gave a broader understanding about the independence of directors which it is “not only independent from CEO but also from the controlling shareholder…. independent directors must protect the interests of minority shareholders against both the CEO’s and the block holder’s actions.” Becht and Roell (2002, p26)

4.3.3 Findings on association between ownership structure and firm performance
Ownership structure is a popular topic which has been argued and researched all the time. Zeitun and Tian (2007, p1) supports the opinion that “Ownership structure and concentration are considered as important factors that affect a firm’s health.” And they
found that ownership structure has significant effects on return on assets (ROE) in Jordan. Kapopoulos and Lazareto (2006) investigate 175 Greek listed companies and found that higher firm profitability requires a less diffused ownership.

In the context of Chinese market, one of the most notable characteristics of ownership structure in Chinese companies is highly concentrated. It is worthy to investigate if this perspective of “independent board is better” applies to such a situation. Jiang (2004) examined the correlation between ownership structure and firm performance with 33 Chinese listed companies as sample, and the finding supports the opinion that the higher ownership concentration cause lower firm profitability. In strong competitive industries, proportion of state-owned shares is negative related with firm performance. In monopoly industries, there was not significant association. Wei and Geng (2008) stated some current issues in Chinese market with regard to ownership structure and they found that dominant state-shareholders and concentrated ownership of listed companies cause incompleteness and ineffectiveness of corporate governance in China. Sun and Tong (2003) evaluate the performance changes of 634 equities listed in Shanghai stock exchanges and Shenzhen stock exchanges from year 1994 to 1998 and find that state ownership has negative impact on firm performance.

4.4 Literature review on board composition of Chinese local companies

In the researches on firm performance and board composition for Chinese listed companies, Li and Zhao (2000) random selected 91 listed companies in the year 1998 and 1999 as samples from Shanghai Stock Exchange and Shenzhen Stock Exchange. They made an assumption that it may result in a poor firm performance when the proportion of inside directors is too high or too low; the firm performance will be good only when the proportion of inside directors is appropriate. From the outcome by doing a regression analysis, when they chose ROA and ROE as the measurement of firm performance, the results do not support their assumption because they did not find any association. Gao and Ma (2002) obtained a result of insignificant correlation between board composition and firm performance by examine their correlation by a sample composed by 1018 listed companies in Shanghai Stock Exchange and Shenzhen Stock Exchange in the year of 2001. Sun and Zhang (2000) found proportion of independent directors do not have an impact on firm performance.

Qu (2007) selected 126 listed companies from Shanghai Stock Exchange and examined
the correlation between board size and firm performance in the year of 2003. And this study found an “inverse U” shape relation between the number of directors in board and firm performance. The range of board size in this sample is within 5-20 directors in board, and the result proved that the firms who have 9-11 directors in board are performing better than others.

Zhang (2005) researched the relation between ownership structure and firm value across a sample of 5284 local Chinese privatized firms from the year of 1991-2001. This study found that state ownership are significantly negatively related to Tobin’s Q, and foreign ownership is significantly positively related to Tobin’s Q. It also found the result of convex relations between state ownership and Tobin’s Q, and between institutional shares and Tobin’s Q. Ke and Isaac (2007) examined the correlation between ownership structure and firm performance with data from all the listed property companies on China’s stock market between the years of 2000-2002. They found a positive concentration between ownership concentration and corporate performance. Sun and Huang (1999) also found a positive correlation between Tobin’s Q and ownership concentration.

To sum up, due to the debate on the inefficiency of board of directors in Chinese companies, people and market require the “independent board” to optimize the function of governance mechanism; it may imply a result of positive association of between proportion of independent directors at board and firm performance. In order to improve the effectiveness of corporate governance of Chinese-listed companies, it is necessary to enhance independence of the board of directors as soon as possible, and set up independent directors so as to align the interests of managers with the shareholders. This study will research on the argument of if a higher independency of board being beneficial to the firm’s performance for local listed-companies in China.

4.5 Summary

From the responsibilities and functions which have been talked above, the efficiency of mechanism of board is one of the most crucial determinants to run a good relation between shareholders and managers. We can carefully get the consequence that a good board might be good at monitoring the firm and management team. Corporate governance mechanism should be always seeking a “good board”, which are usually including following features,
(1) Usually a board consists of members with different backgrounds may be recognized as a good board. Kim and Nofsinger (2007, p46) think the members of boards should be with relevant experience, expertise and different backgrounds. There is no doubt that it is much better for offering expert advice to management if some members are the expertise of the certain industries where the firm is belong to. Besides, the members should have different backgrounds, for example, some of them have the accounting experience and some of them are experts on marketing, which is much more possible to benefit the firms;

(2) With regard to the size of board, in most empirical studies it got a result that the smaller board may promote a better performance of firms. Kim and Nofsinger (2007, p47) states that “… smaller boards are more effective at enhancing a firm’s value than larger boards…For a board with few directors, each board member may feel inclined to exert more effort than they should have otherwise, as they each realize that there are only a few others monitoring the firm.” Empirical findings on this issue are abundant on non-financial industries. Even in developing market, a great number of researches’ results also support this conclusion.

(3) Generally a board with a larger proportion of outsiders (independent directors) is regarded as a more effective board. The logic is straight-forward illustrated by Kim and Nofsinger (2007, p46), “one of the board’s primary responsibilities is to evaluate, compensate, and possibly fire the CEO. What if the board consists of the following people: the firm’s CFO, a friend of the CFO, a relative of the CEO, and a business collaborator of the CEO?” For this reason, it is obviously that if the members of board are not independent on the relationship with CEO, it is actually impact the neutrality when make decisions.

However, even though the independent boards and small boards may have advantages in improving the qualities of monitoring their management, it has not been proved that there is a clear positive relation between board quality and firm performance. Besides, the correlation between board size and firm performance has been proved to be positive in many studies, especially in OECD countries and also in some developing markets.

Table 4.5.1 Summery of previous studies on correlation between proportion of independent directors and firm performance
<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Time horizon</th>
<th>Sample size(Number of companies)</th>
<th>Performance measurement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lopez</td>
<td>10 OECD countries in Western Europe and North America</td>
<td>1996</td>
<td>450</td>
<td>Tobin’s Q</td>
<td>do not find any consistent correlation between the proportion of outsider directors</td>
</tr>
<tr>
<td>Panasian</td>
<td>Canada</td>
<td>1993-1997</td>
<td>300</td>
<td>Tobin’s Q</td>
<td>Larger proportion of outsiders in Board strengthen firm performance</td>
</tr>
<tr>
<td>McIntyre</td>
<td>Canada</td>
<td>2001</td>
<td>300</td>
<td>Tobin’s Q, EVA, and ROA</td>
<td>Negative correlation between firm performance and average amount of outside directors</td>
</tr>
<tr>
<td>Postma</td>
<td>The Netherland</td>
<td>1996</td>
<td>94</td>
<td>Tobin’s Q, ROA,ROE,ROI</td>
<td>No significant association was found</td>
</tr>
<tr>
<td>Li and Zhao</td>
<td>China</td>
<td>1998-1999</td>
<td>91</td>
<td>ROA and ROE</td>
<td>No significant association was found</td>
</tr>
<tr>
<td>Gao and Ma</td>
<td>China</td>
<td>2002</td>
<td>1018</td>
<td>Tobin’s Q</td>
<td>No significant association was found</td>
</tr>
</tbody>
</table>

Table 4.5.2 Summery of previous researches on correlation between board size and firm performance

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Time horizon</th>
<th>Sample size(Number of companies)</th>
<th>Performance measurement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conyon and Peck</td>
<td>UK;France;Italy;Netherland;Denmark</td>
<td>1990-1995</td>
<td>617</td>
<td>Tobin’s and ROE</td>
<td>Board size and firm performance are inversely correlation</td>
</tr>
<tr>
<td>Lopez</td>
<td>10 OECD countries in Western Europe and North America</td>
<td>1996</td>
<td>450</td>
<td>Tobin’s Q</td>
<td>Board size has a negative impact on firm performance</td>
</tr>
</tbody>
</table>
Mohamed US 1995-2002 174 Tobin’Q and ROA Board size and firm performance are positive related in banking industry

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Time horizon</th>
<th>Sample size(Number of companies)</th>
<th>Performance measurement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun and Zhang</td>
<td>China</td>
<td>1998</td>
<td>519</td>
<td>Tobin’s Q</td>
<td>Board size has a negative association with firm performance</td>
</tr>
<tr>
<td>Nie</td>
<td>China</td>
<td>2002</td>
<td>1037</td>
<td>ROE and Tobin’Q</td>
<td>No correlation has been found</td>
</tr>
</tbody>
</table>

Table 4.5.3 Summery of previous studies on correlation between on ownership structure and firm performance

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Time horizon</th>
<th>Sample size(Number of companies)</th>
<th>Performance measurement</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zeitun and Tian</td>
<td>Jordan</td>
<td>1989-2002</td>
<td>59</td>
<td>Tobin’s Q, ROA,ROE,MBR</td>
<td>Government ownership is significantly negatively related to the firm’s probability</td>
</tr>
<tr>
<td>Kapopoulous and Lazareto</td>
<td>Greek</td>
<td>2000</td>
<td>175</td>
<td>Tobin’s Q</td>
<td>Higher firm profitability requires a less diffused ownership</td>
</tr>
<tr>
<td>Jiang</td>
<td>China</td>
<td>2003</td>
<td>33</td>
<td>Tobin’s Q, ROA,ROE</td>
<td>Negative effects of ownership concentration on firm performance</td>
</tr>
<tr>
<td>Ke and Isaac</td>
<td>China</td>
<td>2007</td>
<td>137</td>
<td>ROA</td>
<td>Positive association with corporate performance</td>
</tr>
</tbody>
</table>

4.6 Hypothesis

These empirical literatures discussed above have given me great helpful inspiration on searching for appropriate methods to research the association between board composition
and firm performance. First, when association between board characteristics and firm performance were examined, a regression model was adopted by previous study a lot. For the dependent variables, Tobin’s Q and financial ratio such as ROA, ROE and MBR are vast adopted in many empirical studies to measure firm performance.

Previous researches have yielded different outcomes from various populations, period of sample, and the methods of how the relation and performance being measured. In this study the following hypotheses test relation between board size, proportion of independent directors and firm performance, as well as the association between ownership structure and firm performance.

**H1. The relationship between firm performance and the proportion of independent directors is positively related.**

**H2. The relationship between firm performance and the number of directors in board is negative related.**

**H3. The relationship between firm performance and percentage of shares hold by 10 large shareholders is negative related.**
5 Practical Method

In this section the practical method in this study will be presented including sources and secondary sources gathering and research design.

5.1 Sources of information

Because this study involves in descriptive character in chapter 2 and 4, theories and information need to be collective from available books, articles and websites. Literatures related to the theory are from previous courses such as corporate governance, corporate finance. Secondary sources such as scientific articles and other researches with regard to this issue were found from USBE-Database, Google Scholar, and Emerald. Through key words in the topic many full-text articles were available, and then I through reading abstract to narrow down the sources to be relevant with what will be useful for this study.

5.2 Data collection

One of the purposes of this thesis is to examine the correlation between firm performance and board composition for listed companies in Chinese market. A sample composed by listed companies is selected from Shanghai Stock Exchange. Shanghai Stock Exchange was established in 26th, November, 1990, by the end of 2007, there has been more than 860 companies listed in Shanghai Stock Exchange.

In order to make the study up to date, I retrieve data and information from annual report for the year of 2008 of 100 listed companies. The process of selecting date was not totally random. I did not pick them randomly because,

1) state-owned companies are the majority composition in Chinese listed companies, if the companies were chosen randomly it would be possible that rarely private companies were chosen, however, in this study the attributes of companies is considered as a determinant which may have an impact on firm performance, in order to ensure there would be appropriate amount of private companies including in this sample, I noted the attribute of companies when the companies were being selected;

2) Another reason for not selecting data total randomly is the consideration of industrial distribution. This study is not focused on a certain industry but covers other industries. I learned the industries where are these companies belong to, so as to ensure that companies in manufacture industry, finance industries and other fields were all included
in this sample;
3) Companies with longer history would be picked preferred. With these outlines, when selected samples I tried to pick well-known firms, which means I preferred companies with larger size and more famous for their good evaluation and credit. Some companies made great advertisements to build their brand and indeed they get worthy rewards and attention from consumers, which are also firms of my choices in the selection. And some non-profitable companies were chosen such as an air line companies, because I think aviation industry is very important to a nation’s economy and government offer huge financial support to them even these companies have not been profitable for many years. To sum up, the selection of these companies are much based on the information from social comments and evaluation on these companies.

The reason for limiting the range in listed companies is that the restriction of information about board of directors and financial information. Usually, released reports and annual reports will disclosure the detailed information about board members such as the number of members on boards, number of independent directors on boards and ownership structure. Relevant financial information can be found in reports such consolidated statement, income statement and balance sheet which are released in annual report. This study makes data’s statistical description and regression SPSS, which is a common method adopted frequently in empirical studies.

During the process of retrieving information, first I set the range of population as mentioned above, which is mainly about the industries, attributes, size and reputation. Data resources of companies are available on the official website of Shanghai Stock Exchange, where all the released information of listed companies could be attained such as current and average historical stock price, market value and annual reports. By going through annual report of each chosen company I got information about if this company is state-owned or private, and total asset from their financial summery. Fortunately all of annual reports provided the information about the number of board member and directly point out who of them are independent directors. They also listed top-10 shareholder and the amount of shares they hold.

Because the selection of sample was not totally random, a comparison of the sample in this study with the companies in general at the Shanghai stock exchange will give us some impression on the status of companies in the sample. Appendix III is a classification
of industries in China by China Securities Regulatory Commission (CSRC).

In order to obtain the information about average firm performance in Shanghai Stock Exchange, a software names “Wind Info” was used to get total asset and book value of equity of listed companies. “Wind Info” is the leading financial data and financial software provider in Mainland China and it is widely used in many fund companies to do investing analysis. The information of market value is available on SSE website, and then I used Wind Info to get total asset and book value of equity of every listed company in SSE for year of 2008. Table 5.2 states average firm performance in SSE in 2008. Average Tobin’s Q of listed companies in SSE is 1.0669, which makes it easy to compare the performance of companies in sample with average performance level in market.

Table 5.2 Average performance of listed companies in SSE in 2008

<table>
<thead>
<tr>
<th>Total Asset (Billion, ¥)</th>
<th>460.186.18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book value of equity(Billion, ¥)</td>
<td>66,092.88</td>
</tr>
<tr>
<td>Total Market Value(Billion, ¥)</td>
<td>96,875.31</td>
</tr>
<tr>
<td>Average Tobin's Q</td>
<td>1.0669</td>
</tr>
</tbody>
</table>

5.3 Reliability

“In order to replication to take place, a study must be capable of replication- it must be replicable.” (Bryman and Bell, 2007, p32) We need to carry the investigation in a correct way include data collection and the way of examine samples. Reliability is come up with whether the results of a study are repeatable, and it is particularly in connection with quantitative research. (Bryman and Bell, 2007, P32) Replication and reliability ask us to ensure that when we repeat our study we will get the same results, and the results should be valid.

Previous researches such as Alshimmiri (2004), McIntyre (2007), Murphy and Mitchell (2007) have adopted similar methods and variables provided good samples for my study. The 100 listed companies from Shanghai Stock Exchange will be representative listed companies of China and I will use the similar methods to analyze data so as to ensure that the study is reliable and valid. So when other persons are interesting this topic and choose same data, I believe that we will obtain the same results when we repeat the study.
5.4 Validity

Validity is concerned with the integrity of the conclusions that are generated from a piece of research. (Bryman and Bell, 2007, P32) In order to achieve validity of theory choices, I did literature review corporate governance area. For example, I acquired theories regarding to corporate governance through studying textbook by Kim and Norsinger (2007) and working paper by Becht (2002), also learned the status of ownership structure in China by reading some investigation such as Wei and Geng (2008), etc.

In this study, data is collected from annual reports of listed companies in the year of 2008. Collecting data from listed companies is a common and popular research method in this subject, such as Postma (2001) used cross-sectional data for 1996 on 94 Dutch listed non-financial firms and Mohamed (2009) gathered data from Research Insight database of Standard & Poor’s.

The designing of hypotheses in this study consulted the 7 hypotheses in McIntyre (2007) which is aimed at examine how the nature of board size is related to firm performance. For testing results, as it did in many previous research, it adopt the regression analyses to examine the correlation between board composition and firm performance. With regard to this aspect, some articles and researches gave me very helpful inspiration, such as McIntyre (2007) examined the nature of the relationship between board composition and firm performance by cross-sectional regression analyses, and Mohamed (2009) examined board size and performance in banking industry through using various statistical tools.

5.5 Generalisability

Generalisation is a “process of applying the results of a study beyond the confines of the research”. (Eldabl, 2002) Generalisability is a criterion to ensure the process of researching is unbiased and avoid possible errors.

When the research was designing, I started to think and search for questions which are related to the research purpose. They were involving many factors may influence firm’s performance, then after evaluated these factors I chose a few determinants which probably have impact on firm’s performance such as size of assets, board composition, industries where companies belong to, attributes of companies.
The population of this study is from listed companies in Shanghai Stock Market. As what has been motioned, I chose listed companies because annual reports are available on their website and in annual report or other financial releases which provides me effective method to obtain data. China is a representative fast growing market, so the result of this study could contributes to empirical economic literatures on the topics related to corporate governance. In addition, because the economic situation is different between China and western countries, therefore, this study is only applicable to the Chinese market, and maybe useful for other transition economies.

5.6 Research Design

Because this study has chosen relative deductive approach and positivistic approach, it needs to do a descriptive section to introduce theoretical foundation about existing theory and practical background about Chinese market. In this study there are 3 hypotheses are made to examine the relationship between board composition and firm performance by statistic analysis.

In previous studies the results for examining correlation between board composition and firm performance obtained negative, positive and insignificant associated. McIntyre (2007) made 7 hypotheses when they examined the relationship between board composition and firm performance. These hypotheses included “the firm performance and the number of directors comprising its board are negative”, “The relationship between a firm’s performance and the proportion of its directors who are officers of other corporations is positive”. And many other empirical studies also made similar hypothesis according to theories on this topic. Because of validity of empirical study, this study also borrows reference from previous research when makes assumption, the connection between board composition and firm performance is assumed as:

**H1. The relationship between firm performance and the proportion of independent directors is positively related.**

This hypothesis is used to examine if the independent board makes a contribution to operate a better firm performance. Usually independent board is recognized as a feature of good board, but for China there is a very high concentrated ownership structure and less regulated security market, so the answer is possible different. The independent directors are marked in annual reports directly which is very convenient to get correct identification about independent directors.
With regard to the association between board size and firm performance, most previous studies obtained the results of negative connection unless it is in some special industries. So the hypothesis in this study will be:

**H2. The relationship between firm performance and the number of directors in board is negative.**

It tests if there is any correlation between board size and firm performance. Even the results have been proved in many researches, board size is still an important factor in board of directors which have an impact on firm performance, and we will know if previous results are suitable for Chinese market.

Previous studies have chosen different measurement to represent ownership structure, such as attributes of shareholders, concentration of ownership, etc. This study uses the proportion of shares held by top 10 large shareholders to represent ownership structure for Chinese listed companies, and it assume that the higher concentration of ownership structure result a worse firm performance.

**H3. The relationship between firm performance and percentage of shares hold by 10 large shareholders is negative related.**

It examine if the heavily concentrated ownership structure has a negative impact on firm performance in Chinese listed companies, which has been argued that in China over high proportion of shares held by a few large shareholders not benefit to perform a better business.

### 5.7 Dependent Variables and Control variables

The tested results will be analyzed and explained in descriptive way so as to give a conclusion and information about relation between firm performance and board composition. According to the research done by Alshimmiri (2004), in literatures the measurements of firm performance are usually categorized into accounting-based measures and market-oriented measures. “The market-based performance measures are determined solely and collectively by the market participants who interpret managers’ signals correctly, assuming efficient financial markets, and usually firm managers have no discretion over these measures.” (Turki Alshimmiri, 2004, P108)  The measurement in this study is going to be a financial oriented measure since the will be sampled are from the annual reports and financial reports.

Tobin’s Q was adopted a lot in many researches when it needs to measure performance or
value of firms. “Tobin’s Q, as a market-based performance measure, represents a sharp
measure of corporate value. Since it incorporates the value of all assets, it is supposed to
reflect both the quality of monitoring practiced by pure directors and the degree to which
shareholders’ interests and those of managers are aligned…” Alshimmiri, 2004, p108.
Tobin’s Q is frequently used in researches because it involves in various financial
indexes such as total assets, return on equity, return on assets, and it is flexible to define
the formula according to the requirement of research. As well as Kiel and Nicholson,
Postma(2001), Lopez (1996), McIntyre(2001), etc. they all adopted Tobin’s Q as
measurement of firm performance or profitability.

In this study firm performance is measured by Q, which is formulated by
\[ Q = (market\ value\ of\ equity + total\ assets - book\ value\ of\ equity) / total\ asset \]

Total assets and book value of equity are collected from annual report of every chosen
listed firm; and market value of equity is gathered from historical bulletin of website of
Shanghai Stock Exchange in the end of 2008.

Based on the theory and practical environment where samples are from, I selected some
characteristics of firm which are possibly to affect firm’s performance.
\[ Q = \beta_0 + \beta_1 \cdot board\_size + \beta_2 \cdot board\_composition + \beta_3 \cdot IND\_1 + \beta_4 \cdot IND\_2 \]
\[ + \beta_5 \cdot ownership\_structure + \beta_6 \cdot Ln\_TA + \beta_7 \cdot attribute \]

Board_Size=Number of directors in boards.
Correlation between board size and firm performance has been examined by many
studies which were mentioned in chapter 4. Most of studies obtained negative correlation
except studies sampled from banking industry such as Belkhir (2009)

Board_composition= board composition, here it states the proportion of independent
directors at board.
This information is disclosed in annual reports of listed companies. They state the
number of independent directors in board directly.
The previous findings on the topic of if the larger proportion of independent directors at
board has a positive impact on firm performance is mixed, the answer are various among
regions and industries.
Industry_1= 1 for manufacturing industry; 0 for financial industry and 0 for other industries
Industry_2= 1 for financial service industry; 0 for manufacturing industry and 0 for other industries

Ownership_structure=the proportion of shares owned by Top 10 large shareholders in listed companies.
This information is disclosed in the annual report of listed companies.
There is a high concentrated ownership structure in China; some times the proportion of shares hold by top 10 is larger than 90%, especially in state-owned companies. Many comments complain the high-concentration of ownership structure is pulling down the efficiency of corporate governance, but the empirical findings are mixed too.

Ln_TA= Log of total assets reported in annual report, which is transferred to log of total assets to state the size of firms.
The information about total asset is available in financial information section in annual reports.

attribute = attribute of listed companies, 0 for state-owned companies, 1 for private enterprises.
Usually according to tradition the company can be recognized as state-owned companied when states own more than 50% shares. While in China state-owned companies refer to the companies invested by central government and local government. If a company is invested by central or local government it will be recognized state-owned company, otherwise it is private company.

5.8 Regression model
In previous studies a regression model was used broadly such as Conyon and Peck (1998), McIntyre (2007), and Liu and Fong (2010). When the correlation between two or more variables is being examined, regression model is adopted extensively. A linear regression model is fit for examine correlation as well as prediction, so under a model of linear regression it is common to make assumption about correlation between scalar variable (dependent variable) and other variables. In this study, a correlation needs to be identified, and a linear regression model is appropriated to examine the correlation between firm performance and board composition.
Firm performance is a dependent variable which is measured by Tobin’s Q. Board composition is not the unique control variable but board size, firm size and ownership structure are also taken into account because they are also important indicators which can have impact on firm performance, and they are used in previous researches extensively.

The full linear regression model in this study is as follows:

\[
Q = \beta_0 + \beta_1 \cdot \text{board}_\text{size} + \beta_2 \cdot \text{board}_\text{composition} + \beta_3 \cdot \text{IND}_1 + \beta_4 \cdot \text{IND}_2 + \beta_5 \cdot \text{ownership}_\text{structure} + \beta_6 \cdot \text{Ln}_\text{TA} + \beta_7 \cdot \text{attribute}
\]

\( Q = \) Tobin’s Q = (market value of equity+ total assets- book value of equity)/ total asset

\( \text{Board}_\text{size} = \) number of directors in board

\( \text{Board}_\text{composition} = \) number of independent directors to total number of directors in board

\( \text{IND}_1 = 1 \) for manufacturing industry; 0 for financial industry and 0 for other industries

\( \text{IND}_2 = 1 \) for financial service industry; 0 for manufacturing industry and 0 for other industries

Ownership_structure = proportion of shares owned by Top 10 large shareholders

\( \text{Ln}_\text{TA}= \) log of total assets

Attribute = 0 for state-owned companies, 1 for private enterprises

5.9 Limitation in this research design

Due to firms business is a complex composition, and some factors that could affect firm performance are not easily to be measured by quantitative methods, there might by some limitations in this design.

a. Variables are limited. Board characters encompass many aspects, for example directors backgrounds such as director’s experience, tenure, functional background, stock ownership and other variables that influence director’s interest and their performance (Hambrick, 1987; Zahra and Pearce, 1989) Even though I wish these variables could be measured for deeper understanding, because some of these variables are not convenient to be numerated, or some of them can be numerated but data is not available. Thereby this research mainly chose independence and ownership structure as important variables
to examine the correlation between board composition and firm performance.

b. Index used to measure performance is kind of singular. This study adopts Tobin’s Q as a standard to measure firm performance, which is a traditional and common measurement been used by many factors. It is impossible to reflect the value of board in corporate governance completely correct. Actually board composition is supposed to have impact on some other index such as ability of operation and refund.
6 Analysis and results

In this chapter, statistical results will be analyzed and the findings will be discussed, including descriptive statistics, correlation test and main results from regression analysis.

6.1 Descriptive Statistics

Table 6.1

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry_1</td>
<td>100</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>.55</td>
<td>.500</td>
<td>.250</td>
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<tr>
<td>Industry_2</td>
<td>100</td>
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</tr>
<tr>
<td>Board_size</td>
<td>100</td>
<td>22</td>
<td>6</td>
<td>28</td>
<td>11.47</td>
<td>3.989</td>
<td>15.808</td>
</tr>
<tr>
<td>Board_composition</td>
<td>100</td>
<td>.5000</td>
<td>.0000</td>
<td>.6000</td>
<td>.3432525</td>
<td>.0831871</td>
<td>.007</td>
</tr>
<tr>
<td>Ownership structure</td>
<td>100</td>
<td>.2232</td>
<td>.1406</td>
<td>9839</td>
<td>60512</td>
<td>.1830304</td>
<td>.034</td>
</tr>
<tr>
<td>Ln_TA</td>
<td>100</td>
<td>10.3833</td>
<td>.192700</td>
<td>29.6533</td>
<td>2.2954E1</td>
<td>2.2575171</td>
<td>5.096</td>
</tr>
<tr>
<td>Q</td>
<td>100</td>
<td>3.9947</td>
<td>.5819</td>
<td>4.5766</td>
<td>1.4658E0</td>
<td>.8103162</td>
<td>.372</td>
</tr>
</tbody>
</table>

The sample of 100 listed companies is gathered from Shanghai Exchange Stock. Mean value of Industry_1 is 0.55 means number of non-manufacturing companies is 45; Mean value of Industry_2 is 0.11 explains there are 11 companies are from financial service industry. Mean value of attribute explains that 28 companies of these 100 listed companies are private companies and 72 companies are state-owned.

The biggest size of board in this sample is the one with 28 directors, and there are only 6 members in the smallest board. The average number of member in boards is 11.47.

The most concentrated ownership structure is with 96.98% of shares which is held by top 10 biggest shareholders, while the lowest concentrated ownership structure has 14.06% shared in top 10 shareholders’ hands. The best performance of companies measured by Q is 4.58 and the poorest firm performance in samples is with Q of 0.58. The mean proportion of independent directors is 0.343525, with the largest proportion of 0.5 and smallest of 0 respectively. Log of total asset which stands for firm size will be used to examine the correlation between firm size and firm performance. The value of Q states the firm performance.

6.2 Correlation test

Correlation analysis is usually used for testing the correlation between two sets of data.
Table 6.2 shows us the results of all the correlations between any of 2 variables which are involved in this testing.

Table 6.2

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Industry</th>
<th>Industry</th>
<th>Attribute</th>
<th>Board size</th>
<th>Board composition</th>
<th>Ownership structure</th>
<th>Le To</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDUSTRY 1</strong></td>
<td>Pearson Correlation</td>
<td>Sig (2-tailed)</td>
<td>-0.295</td>
<td>0.010</td>
<td>0.023</td>
<td>0.044</td>
<td>0.211</td>
<td>0.402</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.033</td>
<td>0.651</td>
<td>0.661</td>
<td>0.000</td>
<td>0.734</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>INDUSTRY 2</strong></td>
<td>Pearson Correlation</td>
<td>-0.298</td>
<td>0.005</td>
<td>0.538</td>
<td>-0.140</td>
<td>0.232</td>
<td>0.715</td>
<td>-1.522</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.168</td>
<td>0.663</td>
<td>0.000</td>
<td>0.313</td>
</tr>
<tr>
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<td>100</td>
<td>100</td>
<td>100</td>
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<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td>Pearson Correlation</td>
<td>0.206</td>
<td>0.005</td>
<td>1.000</td>
<td>-0.220</td>
<td>0.053</td>
<td>-0.223</td>
<td>-0.180</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.040</td>
<td>0.005</td>
<td>0.000</td>
<td>0.298</td>
<td>0.747</td>
<td>0.638</td>
<td>0.073</td>
</tr>
<tr>
<td></td>
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<td>100</td>
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<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Board size</strong></td>
<td>Pearson Correlation</td>
<td>-0.331</td>
<td>0.005</td>
<td>1.000</td>
<td>-0.125</td>
<td>0.314</td>
<td>-0.655</td>
<td>-0.377</td>
</tr>
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<td>Sig (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.223</td>
<td>0.661</td>
<td>0.000</td>
<td>0.095</td>
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<tr>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Board composition</strong></td>
<td>Pearson Correlation</td>
<td>-0.444</td>
<td>0.005</td>
<td>0.033</td>
<td>-0.123</td>
<td>0.010</td>
<td>-0.128</td>
<td>-0.139</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.005</td>
<td>0.005</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Ownership structure</strong></td>
<td>Pearson Correlation</td>
<td>-0.323</td>
<td>0.005</td>
<td>0.033</td>
<td>0.314</td>
<td>-0.128</td>
<td>0.100</td>
<td>-0.475</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
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<td>100</td>
</tr>
<tr>
<td><strong>Li, TA</strong></td>
<td>Pearson Correlation</td>
<td>-0.403</td>
<td>0.005</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<td>100</td>
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<td>100</td>
</tr>
<tr>
<td><strong>Q</strong></td>
<td>Pearson Correlation</td>
<td>-0.264</td>
<td>0.005</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.024</td>
<td>0.162</td>
<td>0.517</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
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<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).
** Correlation is significant at the 0.05 level (2-tailed).

First of all, we can find that the size of board has a significant correlation with firm performance (with p-value of 0.005), and they are negative related, which means that the firm with a smaller board will have a better performance than those who are with larger boards. This result is consistent with most of previous studies which obtained the negative relationship between board size in other countries and China. Firm size measured by total assets also shows a significant correlation with firm’s performance, ownership structure and board size. In this case, it is necessary to make a multiple regression to test the VIF (variance inflation factor) because there might be autocorrelation between variables.

However, the correlation between firm performance and board composition is not significant. Not same with the conclusion from theory about this issue, this result may not support the H1 of the relationship between firm performance and the proportion of independent directors in board for Chinese listed companies.

Similar with the result above, there is not a significant correlation between firm performance and ownership structure, based on this result, we may not affirm that the
high concentrated ownership structure is not good at running a good performance, even there is a lot of complains about the high concentration of ownership structure in Chinese companies from society and other comments. Besides, a significant positive correlation is found between board size and ownership structure. This indicates that the larger boards usually exist in high-concentrated ownership companies in Chinese market.

Ownership structure has a negative correlation with attributes. This means state-owned companies have a higher concentration of ownership than private companies. Log of total assets also has a significant negative correlation with Tobin’s Q, which indicates that in Chinese stock market smaller firms perform better than larger firms. Also firm size is significant correlated with board size and ownership structure.

6.3 Simple line regression

6.3.1 Simple line analysis

Figure 6.3.1

From this chart we can find there is a tendency that most of board of directors in this
sample is smaller than 15 members. And many companies have board of directors with 9 members. These firms’ performance is measured by Tobin’s Q, which is much between 1 to 1.6. Recall the average firm performance of companies listed in SSE is 1.0669, which is mentioned in chapter 4. It indicates that majority of the companies in this sample is performing better than average level in SSE. But under the condition that board size is less than 9 members, the correlation between board size and Tobin’s is unclearly. There are seldom boards with size larger than twenty members.

**Figure 6.3.2**

Figure 6.3.2 is a line graph describes the trend of firm performance when board size is growing. The fluctuation of Tobin’s Q is dramatically until the number of board’s member reaches 13. Within this phase, Tobin’s Q waves up and down. The bottom happens at the point when board is composed by 8 members, and then Tobin’s Q soars to about 1.62 with member of board increasing from 8 to 9. There is a small drop of Tobin’s Q when member of board increased to 10, but it keeps climbing till about 1.77 which is the best firm performance, when there are 12 members in boards. After that Tobin’s Q starts to decline and since board size increases to 13 members it will not fluctuate so strong. Then general trend is going down even there is a small increasing at the point where boards have 20 members. Even though the line does not give us a smooth figure of
trend, we still could find that the over all trend of Tobin’s Q is declining when board size is increasing, which is coincident with conclusion in most studies that firms with better performance usually have smaller boards.

**Figure 6.3.3**

![Graph showing the trend of Tobin’s Q](image)

Figure 6.3.3 displays the trend of Tobin’s Q when the proportion of independent directors in board is growing. From the chart it keeps going up and down when proportion of independent directors in board is changing. In this statistics, the poorest performance appears when the proportion of independent directors is 26.67% and the best performance happens when the proportion is 45.45%. The holistic trend is going a little up with the raising of proportion of independent directors in board.
In figure 6.3.4 shows the trend of the Tobin’s Q with variable only selected with ownership structure. When the concentration of ownership is growing, Tobin’s Q is changing irregularly. It fluctuates up and down without any hints for figuring out a trend. Thereby there is no significant regressive relationship between firm performance and the degree of ownership centralization in Chinese listed companies based on this study.
Figure 6.3.5 is trend of Tobin’s Q with the growing of firm size. X-axis is logarithmic total assets. The changing of Tobin’s Q in first half part of X-axis (with Ln_TA smaller than 23.11) is stronger than it in another. This may indicate that the larger firm size is, the more stable of firm performance is. The best firm performance is belong to the firm with least total assets (the firm with log of total asset of 19.27). With the increasing of total assets, firm performance is going down as a whole but with some fluctuation. This indicates that smaller companies have better performance than lager size companies based on the companies sleeted in this study.

6.4 Regression Test Results

It is described by Sykes (1992, p1) in an introduction to regression analysis, “Regression analysis is a statistical tool for the investigation of correlation between variables. Usually, the investigator seeks to ascertain the causal effect of one variable upon another.” In this study linear regression analysis is used to test the impact of independent variables on firm performance.

The table 6.4.1 and table 6.4.2 state the standardized coefficients for respective
Table 6.4.1

<table>
<thead>
<tr>
<th>Variable</th>
<th>I_Q (with variable of Ln_TA)</th>
<th>II_Q (variable exclude Ln_TA and Total_assets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.342</td>
<td>0.096</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.292</td>
<td>0.038</td>
</tr>
<tr>
<td>F statistic</td>
<td>6.843</td>
<td>1.644</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
<td>0.144</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Coeff</th>
<th>t</th>
<th>Sig</th>
<th>Coeff</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND_1</td>
<td>-0.092</td>
<td>-0.951</td>
<td>0.344</td>
<td>-0.046</td>
<td>-0.406</td>
<td>0.686</td>
</tr>
<tr>
<td>IND_2</td>
<td>0.334</td>
<td>2.643</td>
<td>0.010</td>
<td>-0.051</td>
<td>-0.403</td>
<td>0.688</td>
</tr>
<tr>
<td>Attribute</td>
<td>0.056</td>
<td>0.065</td>
<td>0.540</td>
<td>-0.090</td>
<td>0.857</td>
<td>0.394</td>
</tr>
<tr>
<td>Board_size</td>
<td>0.061</td>
<td>0.510</td>
<td>0.612</td>
<td>-0.277</td>
<td>-2.258</td>
<td>0.026</td>
</tr>
<tr>
<td>Board_composition</td>
<td>-0.023</td>
<td>0.261</td>
<td>0.795</td>
<td>-0.030</td>
<td>0.294</td>
<td>0.769</td>
</tr>
<tr>
<td>Ownership_structure</td>
<td>0.302</td>
<td>3.046</td>
<td>0.003</td>
<td>0.118</td>
<td>1.075</td>
<td>0.285</td>
</tr>
<tr>
<td>Ln_TA</td>
<td>-0.897</td>
<td>-5.872</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max VIF</td>
<td>7.891</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.4.2

<table>
<thead>
<tr>
<th>Variable</th>
<th>III_Q (with variable of total_assets)</th>
<th>IV_Q (replaced board_size with 4 quartiles of board size)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.099</td>
<td>0.365</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.030</td>
<td>0.294</td>
</tr>
<tr>
<td>F statistic</td>
<td>1.443</td>
<td>5.126</td>
</tr>
<tr>
<td>Significance</td>
<td>0.198</td>
<td>0.000</td>
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</tbody>
</table>

<table>
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<tr>
<th></th>
<th>Coeff</th>
<th>t</th>
<th>Sig</th>
<th>Coeff</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry_1</td>
<td>-0.046</td>
<td>-0.402</td>
<td>0.689</td>
<td>-0.079</td>
<td>-0.814</td>
<td>0.418</td>
</tr>
<tr>
<td>Industry_2</td>
<td>-0.012</td>
<td>-0.085</td>
<td>0.932</td>
<td>0.332</td>
<td>2.627</td>
<td>0.010</td>
</tr>
<tr>
<td>Attribute</td>
<td>0.088</td>
<td>0.832</td>
<td>0.408</td>
<td>0.049</td>
<td>0.523</td>
<td>0.602</td>
</tr>
<tr>
<td>Board_size</td>
<td>-0.264</td>
<td>-2.108</td>
<td>0.926</td>
<td>0.220</td>
<td>1.069</td>
<td>0.288</td>
</tr>
<tr>
<td>Board_composition</td>
<td>0.010</td>
<td>0.094</td>
<td>0.038</td>
<td>0.018</td>
<td>0.208</td>
<td>0.836</td>
</tr>
</tbody>
</table>
Ownership _structure | 0.124 | 1.121 | 0.265 | 0.294 | 2.914 | 0.005
Total assets | -0.078 | -0.554 | 0.581 | -0.848 | -5.359 | 0.000
Ln_TA | 0.128 | 0.852 | 0.396 | -0.039 | -0.222 | 0.825
Size_2 | -0.159 | -1.410 | 0.529
Size_3 | 0.294 | -0.848 | 7.236
Max VIF | 2.098 | 7.236

R square gives the amount of variance in Tobin’s Q explained by the predictor variables together. It states the coefficient of determination. Take the column Q_1 as example. It explains 34.2% of variance in the dependent variable. Adjusted R square is not very strong since the investigating questions in this study are only focus on a certain specific issue (board composition) but in practical world the quality of business is complex and composed by many components.

The first column in table 6.4.2 provides us the names of variables. Second column (I_Q) states the regression results by following the formula in research design (p 41). F ratio (6.843) is the ratio of mean square- regression to residual and the p value is less than 0.05 which means it is statistically significant. Betas vary between 0 and 1 which states coefficients. When beta is 1 the effect is the strongest. The Colum Sig “gives us the statistical significance of the relationship between each predictor and the dependent variables” Daniel Muijs (2004, p168). In this study we can only find that the correlation among firm size, ownership structure and Tobin’s Q are significant, while others are not. The results show that smaller firms perform better than larger firms and firms with higher concentrated ownership structure are more profitable.

Residuals statistics gave some basic information about the values of the dependent variable that were predicted by the model (Corston, 2001,p124)

Variable Inflation Factor (VIF) is used to test for multicollinearity. However, the max of VIF in column I_Q is 7.891 and. For a test with 100 samples, this VIF is strong, which means there is an autocorrelation among the variables. In this case, I test the regression excluding Ln_total assets aiming to eliminating the autocorrelation. The results show in column II_Q and III_Q in. Column III_Q is the results when firm size is measured by total asset instead of log of total assets, and the autocorrelation exits too.
In order to obtain whether there are any linear or curvilinear correlation between board size and firm performance (Tobin’s q), board size is going to be divided into 4 quartiles as table 6.4.3

**Table 6.4.3**

<table>
<thead>
<tr>
<th></th>
<th>Q1(size_1)</th>
<th>Q2(size_2)</th>
<th>Q3(size_3)</th>
<th>Q4(size_4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board size</td>
<td>0-8</td>
<td>9</td>
<td>10-13</td>
<td>14-28</td>
</tr>
<tr>
<td>Amount of boards</td>
<td>13</td>
<td>34</td>
<td>29</td>
<td>24</td>
</tr>
</tbody>
</table>

Then board size will be replaced by 3 dummy variables and quartiles will be stated by size_2=1 for board of directors with 9 members; 0 for others; size_3=1 for number of board member is between 10 and 13; 0 for others; size_4=1 for number of board member is between 14 and 28; 0 for others.

\[
Q = \beta_0 + \beta_1 \cdot \text{size}_2 + \beta_2 \cdot \text{size}_3 + \beta_3 \cdot \text{size}_4 + \beta_4 \cdot \text{board\_composition} \\
+ \beta_5 \cdot \text{Industry\_1} + \beta_6 \cdot \text{Industry\_2} + \beta_7 \cdot \text{ownership\_structure} + \beta_8 \cdot \text{Ln\_TA} + \beta_9 \cdot \text{attribute}
\]

Last column in table 6.4.2 is the results of regression test and it tells us that there are not any significant correlation between 3 quartiles of board size and firm performance. But results of coefficient may indicate that compare with board_1 (less than 9 members), companies with board_2 and board_3 are performing better, but with board_4 is worse. It suggests that there might be a most appropriate size of board, when it is smaller or larger than this one; Tobin’s Q starts to decrease.

Therefore, to draw the conclusion about the relation between firm performance and board size, when take the results from Column Q_II without taking total assets into account the results show that board size and firm performance are negative correlated, only when the variable of firm size is excluded. When firm size is taking into account, board size has no significant regression with firm performance.
7 Conclusion and further studies

This section is going to conclude and review this study, and suggest future researches in this field.

Corporate governance is an important economical question ever since the ownership and management of companies started to be separated. Chinese market has been working to improve the efficiency of its governance mechanism in past a few decades. And in Chinese corporate governance context usually it is agreed that firms with higher quality of governance have higher market value. Board of directors is one of the most important mechanisms of corporate governance, and there has been many research and studies focus on the correlation between board of directors and firm performance. In Chinese previous empirical studies, ownership structure was researched a lot because in China there is a very high concentration of ownership. And the argument about if this feature is beneficial to corporate governance or firm performance has never been paused. But for China, board composition is needed to be investigated more often in different time period and industry sectors.

One main purpose of this study is to have a review on the existing literatures on the correlation between board composition and firm performance. Since the sample in this study is from China, a booming market, it is also one of purposes to learn and know the environment of listed Chinese companies in and corporate governance in Chinese market.

The second purpose is to extend empirical studies in corporate governance by examine the association between board composition and firm performance in developing market. By analyzing data from Chinese stock market in a recent year, the sample is composed by 100 Chinese listed companies including 55 in manufacturing industry, 11 from financial services industry and 34 from other services. Besides examine association between proportions of independent directors on boards; it also examined the relation between ownership structure and firm performance, firm size and firm performance.

*Is there any correlation between board composition and firm performance among listed companies in China?*

After linear regression test it did not find significant correlation between proportion of
independent directors in board and firm performance, which means there are not enough evidence to prove independent board has any positive impact on improving firm’s performance.

**What is the association between board size and firm performance?**

In this study when firm size is not taken into account the result contributed to the point of there is a inversely relation between board size and firm performance. But when firm size participates in the regression quotation as it is in research design, board size has no significant regression with firm performance.

**Does ownership structure has and impact on firm performance?**

This study obtained a different result, which is a significant positive correlation was found between proportion of share owned by large shareholders. It means that high concentrated ownership benefit the firm performance.

To sum up, by investigating the correlation of between board composition and firm performance of Chinese listed companies, this study contributes to research studies on corporate governance in China and extends empirical studies on corporate governance. Compared with previous studies on this topic, this study chooses a booming market as researching objective. China is one of fastest growing market in worldwide; corporate governance has been attached importance to public. It is worthy to investigate if governance mechanism is efficient and helpful to perform better business. The association between board size and firm performance has been researched with samples in OECD countries a lot, and most of these studies successfully obtained positive correlation between board size and firm performance such as Matin and Peck (1998), and Lopez (2005). Different from these empirical studies, there is no significant association was found in Chinese listed companies in this study.

The correlation between board composition and firm performance are inconclusive. Many studies did not found there were any impacts of proportion of independent directors on firm performance. Similar with previous studies with sample of Chinese listed companies such as Gao and Ma (2002), Sun and Zhang (2000), this study also found that the proportion of independent directors on the board do not have any influence on Tobin’s Q.
Compared with previous local studies in China, this study obtained a newer sample which composed by data in the year of 2008. Besides, the data selection in this study is not completely randomly in order to make the companies reach an appropriate industrial distribution. It considers company size as a determinant which can have a correlation with firm performance and measured it by total asset. There is a finding that total asset is inversely correlated firm performance, which indicates that smaller firms have better performance than larger firms.

**Limitation**

There are some limitations in this study. In this research it only chose independence and ownership structure as important variables to examine the correlation between board composition and firm performance, other characteristics such as tenure, background of directors are not examined. Financial ratio may not totally reflect the importance of board in corporate governance. And firm performance is a result by many drivers and factors interacted. Besides the factors considered in this study, there are many other reasons such as strategy, net work, and social environment.

And another possibility reason for the positive correlation between high concentrated ownership structure and firm performance could be that there might be other factors drive the better performance for these companies. Because there is a trend were found in this study, which is state-owned companies having higher concentrated ownership structure, and these companies may be monopoly or obtaining other benefits such as policies or low prices etc. So it can not be sure that it is the high concentrated ownership structure caused the better performance.

**For further study**

This study has presented some current issues and status of corporate governance in Chinese market, and examined the link between board composition and firm performance for Chinese listed companies. However, in this study it did not succeed to obtain significant correlation between the proportion of independent directors at boards and firm performance, either for board size and firm performance. It did not only pay attention on one special industry, which may be of the reasons, plus the financial crisis in 2008 caused some abnormal phenomenon in market.
For further research I think it would be worthy to conduct a similar study which will gather data from a longer time horizon instead of some certain year so as to reduce the effects of market developments, especially for Chinese market which is growing rapidly but coming up with some negative aspects at the same time.

Another suggestion is to limit sample in some specific industries, as Mohamed (2009) picked samples only within banking industry and obtained a completely different result (inverse relation between board size and firm performance) from previous study on same subject. Besides, the classification of industries may be beyond the range within “manufacturing industry and non-manufacturing industry”, “financial and non-financial industry”, but also to reach some other industries which have not being noticed very much, such as utilities industry, fund companies and auditing firms, etc.

Furthermore, I believe it will be great interesting to conduct a qualitative study with a certain number of relative units such as managers, directors and shareholders being interviewed. For example, authors can make a survey among top managers so as to achieve a general idea about how they think the mechanism of board of directors and how they deal with the relationship with board of directors, how they recognize the relation between board characters and firm performance, and how do they think about empirical researches on this topic.

More studies could assume an interaction between characters of board and firm performance. For example some studies did not find a significant correlation such as Gao and Ma (2002), Postma (2001), but there is a possibility that firm performance or firm value has an impact on board composition or other mechanism of board of directors.

Last, future research could seek for methods to test the efficiency of mechanism of board of directors, or how to build a model of effective board and establish mechanism of corporate governance, in order to operate a better firm performance, more than just limit in testing correlation between them.
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Appendix I Firm Performance and Industries

IND_1 = 1 for manufacturing industry; 0 for financial industry and other industry
IND_2 = 1 for financial industry; 0 for manufacturing industry and other industries
**Appendix II Names of the companies in sample**

<table>
<thead>
<tr>
<th>No.</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>China Coal Energy Company Limited</td>
</tr>
<tr>
<td>002</td>
<td>Handan Iron &amp; Steel Co.,Ltd.</td>
</tr>
<tr>
<td>003</td>
<td>Dongfeng Automobile Co.,Ltd.</td>
</tr>
<tr>
<td>004</td>
<td>Inner Mongolia BaoTou Steel Union Co.,Ltd.</td>
</tr>
<tr>
<td>005</td>
<td>Beijing Double—Crane Pharmaceutical Co.,Ltd.</td>
</tr>
<tr>
<td>006</td>
<td>Shanghai Electric Group Company Limited</td>
</tr>
<tr>
<td>007</td>
<td>Wuhan Iron and Steel Company Limited.</td>
</tr>
<tr>
<td>008</td>
<td>China Jiangling Industrial Co.,Ltd.(Group)</td>
</tr>
<tr>
<td>009</td>
<td>Hisense Electric Co.,Ltd.</td>
</tr>
<tr>
<td>100</td>
<td>Phoenix optical company limited</td>
</tr>
<tr>
<td>111</td>
<td>CSSC Jiangnan Heavy Industry Co., Ltd.</td>
</tr>
<tr>
<td>112</td>
<td>Jiangsu Zhongda New Material Group Co.,Ltd.</td>
</tr>
<tr>
<td>113</td>
<td>Ginwa Enterprise(Group) Inc.</td>
</tr>
<tr>
<td>114</td>
<td>Beijing TongRenTang Co.,Ltd.</td>
</tr>
<tr>
<td>115</td>
<td>Shanghai Kaichuang Marine International Co.,Ltd.</td>
</tr>
<tr>
<td>116</td>
<td>HUBEI   MAILYARD  SHARE  Co.,Ltd.</td>
</tr>
<tr>
<td>117</td>
<td>China Spaceset Co.,Ltd.</td>
</tr>
<tr>
<td>118</td>
<td>Y.U.D Yangtze River Investment Industry Co.,Ltd.</td>
</tr>
<tr>
<td>120</td>
<td>Chongqing Taiji Industry (Group) Co.,Ltd</td>
</tr>
<tr>
<td>121</td>
<td>Chongqing Brewery Co.Ltd.</td>
</tr>
<tr>
<td>122</td>
<td>Lucky Film Co.Ltd.</td>
</tr>
<tr>
<td>123</td>
<td>Chongqing Swell Holding (Group) Co.,Ltd.</td>
</tr>
<tr>
<td>124</td>
<td>China CSSC Holdings Limited</td>
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<td>125</td>
<td>Shanghai Aerospace Automobile Electromechanical Co.,Ltd.</td>
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<tr>
<td>126</td>
<td>Beiqi Foton Motor Co.,Ltd.</td>
</tr>
<tr>
<td>127</td>
<td>Youngor Group Co.,Ltd.</td>
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<tr>
<td>128</td>
<td>Baotou Huazi Industry Co.,Ltd.</td>
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<tr>
<td>129</td>
<td>Inner Mongolia Jjinyu Group Co.Ltd.</td>
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<tr>
<td>130</td>
<td>Fujian Furi Electronics Co.,Ltd.</td>
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<tr>
<td>131</td>
<td>Xinhu Zhongbao Co.,Ltd</td>
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<td>132</td>
<td>Zhejiang Golden Eagle Co.,Ltd.</td>
</tr>
<tr>
<td>133</td>
<td>Liuzhou Liangmianzhen Co.,Ltd</td>
</tr>
<tr>
<td>134</td>
<td>Chongqing Gangjiu Co.,Ltd.</td>
</tr>
<tr>
<td>135</td>
<td>Inner Mongolia Eerduosi Cashmere Products Co.,Ltd.</td>
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<tr>
<td>136</td>
<td>Bluestar New Chemical Maerial Co., Ltd.</td>
</tr>
<tr>
<td>137</td>
<td>Qingdao Aucma Company Limited</td>
</tr>
<tr>
<td>138</td>
<td>Beijing Airport High-Tech Park Co.,Ltd.</td>
</tr>
<tr>
<td>139</td>
<td>Xiamen Tungsten CORP.</td>
</tr>
<tr>
<td>140</td>
<td>Jiangsu Lianhuan Pharmaceutical Co., Ltd.</td>
</tr>
<tr>
<td>No.</td>
<td>Company Name</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>041</td>
<td>Atlantic China Welding Consumables, Inc</td>
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<tr>
<td>042</td>
<td>Hebei Hengshuilaobaigan Liouor Co., Ltd.</td>
</tr>
<tr>
<td>043</td>
<td>Xiamen Faratronic Co., Ltd.</td>
</tr>
<tr>
<td>044</td>
<td>Zhejiang Conba Pharmaceutical Co., Ltd.</td>
</tr>
<tr>
<td>045</td>
<td>Singtao Brewery Company Limited</td>
</tr>
<tr>
<td>046</td>
<td>Bright Dairy &amp; Food Co., Ltd.</td>
</tr>
<tr>
<td>047</td>
<td>Sichuan Changhong Electric Co., Ltd.</td>
</tr>
<tr>
<td>048</td>
<td>Shanghai Zhongxi Pharmaceutical Company Limited.</td>
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<tr>
<td>049</td>
<td>Zhejiang Guangsha Co., Ltd.</td>
</tr>
<tr>
<td>050</td>
<td>Jilin Yatai (Group) Co., Ltd.</td>
</tr>
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<td>051</td>
<td>Founder Technology Group Corp.</td>
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<tr>
<td>052</td>
<td>Wuxi Taiji Industry Company Limited.</td>
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<tr>
<td>053</td>
<td>Jingtou Yintai Co., Ltd.</td>
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<td>054</td>
<td>Qingdao Haier Co., Ltd.</td>
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<td>055</td>
<td>Shinva Medical Instrument Co., Ltd.</td>
</tr>
<tr>
<td>056</td>
<td>China Citic Bank Corporation Limited</td>
</tr>
<tr>
<td>057</td>
<td>Bank of China Limited</td>
</tr>
<tr>
<td>058</td>
<td>China Construction Bank Corporation</td>
</tr>
<tr>
<td>059</td>
<td>China COSCO Holdings Company Limited</td>
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<tr>
<td>060</td>
<td>China Life Insurance Company Limited</td>
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<td>061</td>
<td>Beijing North Star Company Limited</td>
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<td>062</td>
<td>Bank of Communications Co., Ltd.</td>
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<td>Air China Limited</td>
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<td>064</td>
<td>Shanghai Pudong Development Bank Co., Ltd.</td>
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<td>065</td>
<td>China World Trade Center Company Ltd.</td>
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<td>066</td>
<td>Beijing Capital Co., Ltd.</td>
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<tr>
<td>067</td>
<td>Shanghai International Airport Co., Ltd.</td>
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<td>068</td>
<td>Huaneng Power International, INC.</td>
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<td>069</td>
<td>Hua Xia Bank Co., Ltd.</td>
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<td>China Minsheng Banking Corp., Ltd.</td>
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<td>Rizhao Port Co., Ltd.</td>
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<td>China Southern Airlines Company Limited</td>
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<td>Citic Securities Co., Ltd.</td>
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<td>China Merchants Bank Co., Ltd.</td>
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<td>China United Network Communications Limited</td>
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<td>Cntic Trading Co., Ltd.</td>
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<td>077</td>
<td>Nanjing Xingang High-Tech Co., Ltd.</td>
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<td>Nanjing Tanker Corporation</td>
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<td>China Cyts Tours Holding Co., Ltd.</td>
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<td></td>
<td>Company Name</td>
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<td>---</td>
<td>------------------------------------------------</td>
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<td>082</td>
<td>Sichuan Western Resources Holding Co., Ltd</td>
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<td>083</td>
<td>Hainan Airlines Company Limited</td>
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<td>084</td>
<td>Cosco Shipping Company Limited</td>
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<td>085</td>
<td>Time Publishing &amp; Media CO., LTD.</td>
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<tr>
<td>086</td>
<td>Sunyard System Engineering Co., Ltd.</td>
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<td>Beijing Jingneng Thermal Power Co., Ltd.</td>
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<td>Shanghai Airlines Co., Ltd.</td>
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<td>091</td>
<td>Shanghai Oriental Pearl(Group) Co., Ltd</td>
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<td>092</td>
<td>Silver Plaza Group Co., Ltd</td>
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<td>Dongfang Electric corporation Limited</td>
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<td>Shanghai Lujiazui Finance &amp; Trade Zone Develop</td>
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<td>Guangzhou Pearl River Industrial Development Co., Ltd.</td>
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<td>100</td>
<td>Shanghai Bailian Group Co., Ltd.</td>
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</table>
## Appendix III  Industry Distribution in SSE

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of stocks</th>
<th>Market Value(Yuan)</th>
<th>P/E</th>
<th>Average Price</th>
</tr>
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<tr>
<td>Agriculture</td>
<td>24</td>
<td>98,199,867,698</td>
<td>75.26</td>
<td>9.43</td>
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<tr>
<td>Coal</td>
<td>27</td>
<td>3,621,060,909,544</td>
<td>18.06</td>
<td>11.81</td>
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<tr>
<td>Manufacturing</td>
<td>489</td>
<td>3,529,783,015,922</td>
<td>33.12</td>
<td>10.62</td>
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<tr>
<td>Food &amp; Beverages</td>
<td>35</td>
<td>356,901,310,721</td>
<td>39.1</td>
<td>20.02</td>
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<tr>
<td>Clothing and textile</td>
<td>40</td>
<td>142,388,374,363</td>
<td>26.08</td>
<td>8.36</td>
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<tr>
<td>Wood and furniture</td>
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<td>10,615,185,846</td>
<td>31.16</td>
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<tr>
<td>Paper &amp; Forest Products</td>
<td>16</td>
<td>50,775,648,756</td>
<td>22.35</td>
<td>7.52</td>
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<tr>
<td>Oil and Gas</td>
<td>84</td>
<td>412,549,772,453</td>
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<td>Electrical equipment</td>
<td>28</td>
<td>122,991,048,687</td>
<td>63.46</td>
<td>8.97</td>
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<tr>
<td>Metals and Nonmetals</td>
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<td>699,385,924,711</td>
<td>32.29</td>
<td>8.34</td>
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<tr>
<td>Machinery</td>
<td>143</td>
<td>1,248,364,465,875</td>
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<td>10.58</td>
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<td>Medicine</td>
<td>56</td>
<td>425,611,192,275</td>
<td>33.01</td>
<td>16.69</td>
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<td>other manufacturing</td>
<td>12</td>
<td>60,200,092,235</td>
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<td>Power</td>
<td>47</td>
<td>622,975,483,176</td>
<td>28.94</td>
<td>7.5</td>
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<tr>
<td>Construction &amp; Engineering</td>
<td>25</td>
<td>467,872,549,911</td>
<td>17.36</td>
<td>5.18</td>
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<td>Transportation Services</td>
<td>53</td>
<td>873,245,567,363</td>
<td>28.04</td>
<td>6.94</td>
</tr>
<tr>
<td>Technology Hardware &amp; Equipment</td>
<td>55</td>
<td>404,910,198,972</td>
<td>41.25</td>
<td>9.04</td>
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<tr>
<td>Retail</td>
<td>63</td>
<td>369,118,332,469</td>
<td>35.32</td>
<td>13.54</td>
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<td>Finance</td>
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<td>Real Estate</td>
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<td>Media</td>
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<td>68,025,035,797</td>
<td>46.99</td>
<td>13.73</td>
</tr>
<tr>
<td>Integration</td>
<td>38</td>
<td>214,056,730,820</td>
<td>37.54</td>
<td>8.2</td>
</tr>
</tbody>
</table>