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Corporate Governance, Firm Performance, and Information Leakage: an Empirical Analysis of the Chinese Stock Market

By

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Abstract

The purpose of this thesis is to analyse the effect of corporate governance on firm performance and information leakage in the Chinese securities market. As one of the major emerging markets in the world, the results of this thesis are valuable not only to the Chinese market, but also to other emerging markets.

To achieve this purpose, data is collected from most of the non-financial listed companies in the two Chinese stock exchanges, which are the Shanghai Stock Exchange and the Shenzhen Stock exchange. The data sample covers the period from 2004 to 2008, since there was a series of new reforms in the Chinese stock market at that time. These reforms include new legislation and the reduction of non-tradable shares. Then this thesis employs the panel technique and the pooled OLS to estimate the effect of corporate governance on firm performance and information leakage in Chinese listed companies.

Firstly the relationship between corporate governance and firm performance in Chinese companies is empirically evaluated. The empirical results of this thesis find that the ownership structure of Chinese companies will affect their firm performance. In this thesis, proxies of ownership structure include the proportion of institutional ownership, the proportion of the state ownership, the proportion of shareholdings of the largest shareholder, and the proportion of tradable shares in Chinese companies. A greater proportion of

institutional ownership has positive effects on firm performance in Chinese companies. Board subcommittees also help Chinese companies to increase firm performance. The market reforms of 2006 also help Chinese companies to increase their firm performance. However, the board of directors and board of supervisors do not affect firm performance in Chinese companies.

Secondly, information leakage in the Chinese Stock Market is empirically assessed. If investors receive corporate material information before the public disclosure, this phenomenon is known as information leakage. The thesis finds that information leakage in the Chinese market is widespread.

Finally, the thesis empirically examines the effects of corporate governance on information leakage in Chinese companies. Board subcommittees have negative effects on information leakage in Chinese companies. Other variables of corporate governance do not affect information leakage in Chinese companies. Additionally, the thesis finds that market reform promotes more information leakage in Chinese market.

On the basis of the empirical results, the thesis provides the following recommendations. First, the Chinese Stock Market needs to reform the relevant legislation. Second, Chinese companies need to reform their ownership structure. These suggestions may strengthen the internal governance of Chinese listed companies, thereby, increasing firm performance and decrease information leakage.

CONTENT

List of figures

List of tables

List of appendices

Abbreviation:

BOD: Board of Directors

BOS: Board of supervisors

CARs: Cumulative Abnormal Returns

CCL: Company Law of the People's Republic of China

CCP: Chinese Communist Party

CSL: Securities Law of the People's Republic of China

CSRC: The China Securities Regulation Commission

NAV: Normalized Abnormal Volume.

OECD: The Organisation for Economic Co-operation and Development

SEC: The Securities and Exchange Commission

SOX: Sarbanes–Oxley Act

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AUTHOR'S DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Committee.

A programme of advanced study was undertaken, which included the General Teaching Associates (GTA) course and PG CertLearning &Teaching in Higher Education (LTHE) 300.

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8th international conference on corporate governance (2010) – University of Birmingham, UK

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Chapter 1. Introduction

The series of financial scandals, which occurred at the beginning of the 21st century, have seriously harmed investor confidence in the financial markets. Since then, research in finance has focused on various ways to foster prudent governance in organisations.

Thirty years ago, the Chinese market began to replace a planning-oriented economic regime with a market-oriented one. During this process, the stock exchanges were created and the Chinese market began to introduce the corporate governance mechanism. Corporatization of the State Owned Enterprises (SOEs) began in 1992, followed by the introduction of a corporate governance mechanism through the Company Law of the People's Republic of China and the Securities Law of the People's Republic of China in 1994. The process was accelerated when China joined WTO in 2000 and opened its domestic market to international investors. At the beginning of 2006, the Chinese listed companies began to increase the proportion of tradable shares. At the same time, new Company Law of the P.R. China and new Securities Law of P.R. China were introduced to improve the corporate governance of the Chinese listed companies. However, the Chinese securities market and the corporate governance mechanism of Chinese listed companies are not yet as sophisticated as those in the developed markets, such as the UK, and the U.S. Therefore, there are several lessons that China can learn from the developed markets.

Most of the contemporary listed companies have numerous shareholders. However, most of these shareholders are excluded from corporate decision

making. Thus, shareholders of companies need an agent to control companies. However, the interest of an agent may not be consistent with that of shareholders. Conflicts of interest among corporate participants lead to the agency cost in companies. Agency cost is the cost arising from conflicts of interest among corporate participants. Conflicts of interest also create asymmetric information in the market, since most shareholders do not control companies. Under this circumstance, shareholders lack opportunities to oversee insiders. This motivates insiders to expropriate the interests of shareholders, and the cost of such expropriation is also a kind of agency cost. Therefore, companies need corporate governance mechanisms to reduce the agency cost in companies, thereby increasing firm performance and protecting the interests of shareholders.

Mr. Jinglian Wu, the pre-eminent Chinese economist, has said that Chinese stock market looks like a disordered game of gambling (Zhang, 2005). Fraudulent activities are a serious problem in this market (Kang *et al.*, 2008), and investors have to bear the costs of these. One such activity is insider trading, when investors use inside information or material information to trade stocks in the market. The majority of Chinese investors believe that insider trading is not only extensive, but also ingrained in the Chinese market(Huang, 2007; Kang *et al.*, 2008). Chinese research suggests that weak public regulation and low corporate transparency are the main reasons for insider trading activities in the Chinese market (Wang *et al.*, 2003; Lu and Ge, 2004; Wu, 2004; Chen, 2007). By the end of 2004 only 11 cases of insider trading had been reported to the regulator, and there were only 2 criminal prosecutions for insider trading in the Chinese market (Huang, 2007). As the market becomes more developed, the Chinese Securities Regulation Commission (CSRC), the

2

market's regulatory authority, has begun to pay more attention to this problem (Liu *et al.*, 2010). Although the CSRC has promised strict enforcement of the regulations, Chinese investors still doubt the effectiveness of the CSRC.

Keown and Pinkerton (1981) show that prices move prior to a corporate announcement; this suggests that some market investors know the content of inside information in advance. This phenomenon may entail illegal insider trading activities, since use of inside information prior to a public announcement breaks insider trading regulation. The separation of control and ownership leads to the control of corporate information being held by executives of companies (Lakhal, 2008). Executives' managerial discretion enables them to choose the content and time of corporate disclosure under the regulatory rules of securities markets. Additionally, the regulatory rules also restrict the extent to which executives can benefit from their information advantages. In this case, corporate executives may leak information to certain types of corporate participants who have good relationship with executives (Mac, 2002). Information leakage widens the information gap between the participants who receive the information and other participants who don't receive it, and it may exacerbate the conflicts of interest between executives and those uninformed participants. Serious information leakage means that there is serious asymmetric information among participants in companies. Thus, an increase in corporate transparency will reduce the information leakage from companies. Previous studies of the Chinese securities market focus on information leakage prior to an announcement and then suggest that this may encourage insider trading activities (Tuan *et al.*, 1995; Shi and Jiang, 2003; Yan and Zhao, 2006). However, they pay less attention to the idea of increasing corporate

transparency in order to decrease information asymmetry and reduce information leakage.

In 2006, the Chinese Stock Market started a new round of corporate governance reform. Thus, it is valuable to evaluate effects of corporate governance on firm performance and information leakage in the new market environment.

1.1. Aim and objectives

The purpose of this study is to empirically test the effects of the current corporate governance mechanism of Chinese listed companies on information leakage prior to earnings announcements and on firm performance.

China has introduced various corporate governance mechanisms in the past few decades, which aim to align the interests of the managers with the interests of the shareholders. Such alignment is expected to improve company performance. In addition, corporate governance mechanisms are expected to reduce information asymmetry between companies and shareholders and consequently lower the phenomenon of information leakage.

The objectives of the thesis are as follows.

(1) To empirically evaluate the effects of corporate governance on firm performance in Chinese companies.

(2) To empirically test the extent of information leakage in Chinese securities market.

(3) To empirically examine the relationship between corporate governance and information leakage in Chinese companies.

(4) To empirically evaluate the effects of corporate governance on firm performance and information leakage in Chinese companies, and to provide recommendations.

1.2. Summaries of empirical findings and suggestions

This thesis finds that state ownership does not impair the performance of Chinese listed companies. Additionally, the ownership structure does not affect firm performance in Chinese listed companies. An increase in institutional investors helps listed companies to achieve better company performance in the Chinese market. Subcommittees of the boards of directors have positive effects on the performance of Chinese listed companies. Characteristics of the board of directors do not affect the performance of Chinese listed companies. Although there is a negative relationship between the proportion of tradable shares and company performance, this does not mean that the policy of elimination of non-tradable shares should be abandoned. Generally speaking, firm performance of Chinese listed companies in the post-reform period is better than that in the pre-reform period. To some extent, this result means that the market reforms are achieving their original goal.

The research undertaken for this thesis finds that the ownership structure of Chinese listed companies has significant effects on the improvement of company performance. Although Chinese listed companies are experiencing reform, large shareholders, especially majority or holding shareholders, still have substantial influence on the listed companies; they have the ability to influence the management of companies in their own interests. For instance,

large shareholders influence the composition of boards of directors in the Chinese listed companies(Kang *et al.*, 2008; Wei and Geng, 2008).

Information leakage in the Chinese securities market is significant. Figures of run-up index show that information about an announcement may be leaked prior to the announcement, and it may be incorporated into the stock price. The normalized abnormal volume (NAV), which is the proxy of trading volume, shows that there is an increase in the trading volume before the announcement. These results suggest that the information might be leaked to the market before the announcement day, and there might be insider trading in the Chinese market.

Company size does not affect information leakage in the Chinese market. The proportion of tradable shares also does not affect information leakage. The purpose of reducing non-tradable shares is to increase the liquidity of Chinese listed companies, thereby promoting the development of corporate governance to reduce information asymmetry between companies and shareholders. However, the 'free-rider' problem, which is the weakness caused by widespread ownership, reduces corporate transparency. Thus, this causes the proportion of tradable shares to have insignificant effect on information leakage. State ownership is found to have no significant effect on information leakage. There is no significant relationship between the ownership concentration and information leakage. In general, the proportion of institutional ownership does not affect information leakage. Neither the characteristics of boards of directors (e.g. board independence, board size, and leadership structure) nor the characteristics of boards of supervisors (board size) of Chinese listed companies are found to affect information leakage. Board subcommittees have

negative effects on information leakage. This means that board subcommittees will reduce the information leakage in Chinese listed companies. Finally, this thesis finds that there is more serious information leakage in the Chinese market after the market reforms. The market reforms increased market liquidity However, the increase in market liquidity increases the profitability of illegal activities, thereby stimulating more information leakage.

On the basis of the empirical results, the recommendations of this thesis include:

- The current ownership reform policy should be continued, since institutional ownership has a positive effect on firm performance in Chinese listed companies. Thus, Chinese listed companies should increase the proportion of institutional ownership in the ownership structure.

- The legislation of the Chinese market should encourage independent directors to actively join the process of corporate decision making. Additionally, the proportion of independent directors should be increased. The boards of supervisors and of independent directors should be integrated as one institution to increase the quality of internal supervision of Chinese listed companies. Finally, legislation should encourage institutional investors to actively join the management of the Chinese listed companies.

- The CSRC, which is the regulatory agency of the Chinese market, should undertake more duties to increase the quality and skill of the Chinese investors.

1.3. Contributions

The Shanghai Stock Exchange of China is now the sixth largest in the world, after London, with a total domestic market capitalisation of $2.704 trillion (www.world-exchanges.org, 2010). Hence the findings of this thesis will be valuable to domestic as well as to international market participants, regulators, other emerging markets and the developed markets.

This thesis will contribute to literature in the following ways.

1) Through the collection of recent market data, this thesis analyses the relationship between corporate governance mechanisms of Chinese listed companies and their performance. Empirical results indicate that an optimal ownership structure will help Chinese listed companies to increase their performance. Additionally, the recent market reforms also contribute to the improvement of firm performance in Chinese market

2) This thesis provides empirical evidence that information leakage is still serious in the Chinese securities market.

3) This thesis empirically evaluates the effect of corporate governance mechanism in Chinese listed companies on information leakage in Chinese market. Chinese listed companies should strengthen the effects of corporate governance mechanisms on corporate transparency thereby decreasing information leakage in Chinese market.

4) The thesis provides empirical evidence of the effects of corporate governance on firm performance and information leakage in Chinese companies. According to this evidence, the thesis provides

recommendations to Chinese companies to improve performance of corporate governance.

1.4. Thesis structure

The purpose of this thesis is to analyse the corporate governance mechanism in Chinese market, thus the institutional background is introduced in Chapter 2. Firstly, this chapter briefly introduces the history of economic development in the Chinese Stock Market. Secondly, this chapter summarises the current practices of corporate governance mechanisms in Chinese listed companies. Thirdly, this chapter reviews the current developments of corporate governance mechanism in Chinese listed companies. Finally, chapter 2 briefly discusses the cultural background of Chinese society.

The relevant literature is reviewed and discussed in Chapter 3. This chapter briefly reviews the relevant theories about corporate governance to develop the theoretical framework of this thesis. This chapter also reviews the previous studies into the relationship between corporate governance and the performance of companies, and the relationship between corporate governance and corporate transparency. Previous studies reveal that a good corporate governance mechanism will help companies to increase their performance and reduce the information asymmetry between companies and their shareholders.

The research method of this thesis is discussed in Chapter 4. Firstly, Chapter 4 briefly introduces the research philosophy and research method employed. After that this chapter develops the hypotheses of the thesis, which are based on the discussions within chapter 2 and chapter 3. Thirdly, this chapter introduces event study and the research model of the thesis. Finally,

chapter 4 discusses the data collection and provides descriptive statistics of the sample.

The empirical results about the relationship between corporate governance mechanism and the performance of Chinese listed companies are presented and discussed in Chapter 5. In this chapter, the effects of corporate governance mechanisms on the performance of Chinese listed companies are listed in detail. After that this chapter discusses and interprets these empirical results to find out how the corporate governance mechanism affects performance of Chinese listed companies.

The results concerning information leakage are listed and discussed in Chapter 6. Firstly, this chapter reports and discusses the results of event study to reflect the phenomenon of information leakage in the Chinese securities market. Secondly, this chapter discusses two reported insider trading cases and one suspected case of insider trading that happened recently.

The relationship between corporate governance and information leakage is reported and discussed in Chapter 7. Firstly, this chapter shows the empirical results about the relationship between the corporate governance mechanism and information leakage in Chinese listed companies. Secondly, this chapter discusses and interprets the empirical results to find out how the corporate governance mechanism affects information leakage in Chinese listed companies.

The thesis is concluded in Chapter 8. Firstly, this chapter provides suggestions for improving the quality of corporate governance mechanism in Chinese companies. Secondly, this chapter summarises the empirical findings of the thesis. Finally, this chapter provide future research directions.

Chapter 2. Institutional framework

2.1. Introduction

Because of its special development history and political regime, the Chinese securities market and Chinese listed companies have some unique features. The purpose of this chapter is to introduce the institutional background of the Chinese securities market and the corporate governance mechanism of Chinese companies.

Firstly, this chapter will briefly introduce the history of Chinese economic development. Features of the corporate governance of Chinese listed companies are the result of its special economic development. Thus, it is necessary to understand that development.

Secondly, this chapter will introduce the features of the corporate governance mechanism of Chinese listed companies. This will describe the current practice of corporate governance. It also catalogues the criticisms of the corporate governance mechanism of Chinese listed companies. Additionally, this chapter will introduce the recent changes in the corporate governance of the Chinese listed companies.

Finally, this chapter will briefly introduce the cultural background of Chinese society. Because of the specific cultural influence, the experience of other advanced markets cannot be used directly as a model for the

development of the Chinese market. Thus, it is important to recognize the cultural background of the Chinese market.

2.2. History of Chinese economic development

2.2.1. 1949-1978

From 1949-1978, the dominant economic regime of China was a bureaucratic planning oriented or central planning oriented economic regime, which was introduced by the Chinese Communist Party (CCP) from the Soviet Union. During this period, the only business entities in the Chinese market were the State Owned Enterprises (SOEs). Under the central planning oriented economic regime, 'the corporate governance of the state owned enterprise in China is typically government-oriented' (Li, 2006:108). During this period the government firmly controlled all aspects of the SOEs (Tian and Estrin, 2005). Under this circumstance, the corporate governance mechanism of the Chinese companies was simple, since the government simultaneously served as the managers and owners (Xu *et al.*, 2005). For instance, members of the managerial team were nominated by the government and the quantity of output was determined by the government. Additionally, before economic reform, the Chinese market lacked a sophisticated social security system. Thus, the SOEs have to serve as providers of social security in China (Xu *et al.*, 2005).

Overall, under the planning oriented economic regime, the Chinese SOEs lacked managerial discretion and they had to take into account other non-commercial business.

2.2.2. 1978-1992

After 1978, the new Chinese leaders decided to abandon the planning oriented economic regime to promote the future development of Chinese companies. Under the planning oriented economic regime, the SOEs did not have managerial discretion and the non-business duties dispersed their managerial focus. As a consequence of this, the SOEs could not achieve good company performance. Thus, the government wanted to reform the situation, while retaining minimum control of these SOEs (Tian and Estrin, 2005). Su (2005) classified the features of the economic reform: 1) decentralization, 2) commercialization, and 3) partial separation of ownership and control.

At the beginning of the 1980s, the Chinese government gave more managerial discretion to the SOEs (Zhang *et al.*, 2005). Additionally, SOEs were authorized to allocate the residual value (Su, 2005). These reforms promoted SOEs to make market oriented decisions and provide financial incentives to staff.

From the second half of the 1980s to the beginning of the 1990s, Chinese economic reform could be characterised by the introduction of the Management Responsibility Contract System (MRCS) or Performance Contract (PC) (Zhang, 2004; Zhang, 2006). MRCS created a criterion to evaluate the performance of executives, and thus motivate them to increase firm performance and their private wealth.

However, Su (2005:120) says that 'the contractual relationship between managers and the government was asymmetric and incomplete'. First of all, as the owner of SOEs, the state still had substantial influence on them. Additionally, the government had no intention of closing the poorly performing

SOEs. As a result of this, the output of the SOEs could not match the resource input (Su, 2005; Zhang, 2004). MRCS lacked the motivation to promote the development of sophisticated Chinese entrepreneurs (Su, 2005). Additionally, Chinese SOEs still had to act as the providers of social security, rather than be a purely business entity (Su, 2005).

Compared with the period of 1949-1978, the SOEs had more discretion to determine managerial decisions. However, pre-1992 economic reform was driven by the willingness of the government, since it remained a substantial influence on economic development (Clarke, 2003). Zhang (2006) reports that only one-third of the Chinese SOEs generated a net profit and one-third of the Chinese SOEs generated a net loss. Therefore, China needed a new wave of economic reform.

2.2.3. After 1992

The year 1992 is a milestone in Chinese economic development when the Chinese government decided to replace the planning oriented economic regime with the market oriented economic regime. In 1992, the CCP held its 14th Representative General Meeting. One purpose of this meeting was to decide the economic policy for the next decade in China. Leaders of the CCP decided to introduce a market oriented economic mechanism to accelerate Chinese economic development (Zhang, 2004). The new economic mechanism can be characterized by a unified market, a new regulatory system, and the introduction of new laws. Additionally, the government wished to reduce the inappropriate political influence of the state, and increase the effect of market mechanism on economic development (Zhang, 2004). The government pushed the old SOEs to become modern corporations. Zhang (2004) has classified the

process of corporatization into two periods, which are the period of 1992 to 1997 and the period of post-1997.

From 1992 to 1997, the government selected some SOEs to comprise an experimental sample to test the effect of corporatization on economic development. At the same time, it was trying to complete the building of a capital market for China, e.g. two stock exchanges (Shang Hai Stock Exchange and Shen Zhen Stock Exchange) were created at the beginning of 1990s. Additionally, the government mitigated the restriction of development of non-state owned business entities. Before 1992, non-state business entities were not legal economic entities in the market, since the national macroeconomic policy still restricted their development. After 1992, the government amended its economic policy to encourage the development of non-state business entities. At the same time, the government allowed some SOEs to become private companies. Some of the small SOEs and SOEs which performed very poorly, were sold to private investors to reduce the burden on the government's budget (Su, 2005).

The Chinese government named the process of introducing the market oriented economic regime as the procedure to create a Modern Enterprise System (MES) or Corporate Shareholding System (CSS) (Su, 2005). Through initial public offerings (IPOs) and seasoned equity offerings (SEOs), external investors were introduced to the Chinese SOEs (Su, 2005). In those corporatized SOEs, the state is the largest shareholder and holds the majority of shares; these shares cannot be exchanged in the market. To manage these state assets, the Chinese government created a new department, which is called the State Asset Management Bureau or the State Asset Management

Council (SAMB or SAMC), to serve as the majority (holding) shareholder in those corporatized SOEs (Su, 2005). In these experimental companies, a board of directors was created to represent the interests of corporate shareholders - the board's task was to make managerial decisions and monitor the managerial activities of executives. Additionally, the Chinese government changed its economic policy to allow bankruptcy, and mergers and acquisitions (M&A). At the same time, the Chinese government established a social security system to reduce the non-business duties of Chinese companies. These activities were intended to motivate Chinese companies to become pure business entities. Tian and Estrin (2005) find that the company performance of those experimental SOEs was significantly better than that of the non-experimental SOEs.

Thus, after the 15th Representative General Meeting of the CCP in 1997, the Chinese government accelerated the process of corporatization. The government pushed the majority of the SOEs to join the process of corporatization. The CCP also promulgated a series of internal policies to restrict the political influence of the Party Secretary in the SOEs (Tian and Estrin, 2005). In the managerial hierarchy of the SOEs, the Party Secretary works as a representative of the CCP to monitor their operation. Thus, these people have always had a substantial political influence on Chinese SOEs; for instance, they have the power to approve and reject any managerial decisions of SOEs. These new policies are intended to constrain the inappropriate influence of the Secretaries on management. China became a member of the World Trade Organization (WTO) after 2000. This event further motivated the Chinese government to amend and abandon several laws that contradicted the

principles of the WTO, and thus facilitated the development of a market oriented economic mechanism in China.

2.3. Corporate governance mechanism in Chinese listed companies

2.3.1. Board of directors and board of supervisors

The Chinese congress (The National People's Congress) promulgated the Company Law of the P.R.C. (CCL) in 1994 to standardise the corporate structure and legal liability of each participant. Promulgation of the CCL 1994 represented a signal that the Chinese government was attempting to replace the planning oriented economic regime (Li, 2006). Under the requirements of the CCL 1994, power of control is distributed between four internal bodies, 1) general meeting of shareholders, 2) board of directors, 3) board of supervisors, and 4) corporate executives. However, the effect of the legislation is impaired by the fact that the general meeting of shareholders is nominal; the managerial team has too much power, and the board of directors and board of supervisors too little (Li, 2006).

The CCL 1994 stipulated that a board of directors should monitor the corporate executives, thereby maximising the interests of the shareholders. Thus, the board of directors would represent the majority of shareholders in monitoring the listed companies. However, Tian and Estrin (2005), Allen *et al.* (2005), and Allen *et al.*(2007) state that the members of the boards in Chinese listed companies represent the interests of the majority (holding) shareholders,

since the nomination process is affected by them. The economic history of Chinese market causes the state to be the holding shareholder of the majority of Chinese listed companies. Therefore, the Chinese listed companies lacked directors who could represent the interest of other shareholders (Tian and Estrin, 2005). Besides the board of directors, another important pillar of the internal governance mechanism of Chinese listed companies is the board of supervisors. The CCL 1994 stipulated that the board of supervisors represent other stakeholders by taking part in the process of corporate decision making and of monitoring the companies (Wang, 2005).

CCL 1994 defined the power and duties of the two boards. According to the CCL 1994, the power and duties of the board of directors includes:

- to approve major related party transactions;

- to propose to the board of directors the appointment or removal of the accounting firm;

- to propose to the board of directors the calling of an interim shareholder's meeting;

- to propose calling a meeting of the board of directors;

- to appoint an outside auditing or consulting organization independently; and

- to choose to solicit the proxies before the convening of the shareholders' meeting (Wang, 2005:144).

According to the CCL 1994, power and duties of supervisory board includes:

- to check up on the financial affairs of the company;

- to supervise acts of directors and managers to ensure that they do not violate laws, regulations or the company's articles of association;

- to request remedies from directors or managers where their acts have harmed the company;

- to propose the convening of interim meetings of the board of directors; and

- to take other powers as provided by the articles of association (Wang, 2005:144).

In a board of directors of Chinese listed companies, the executive directors are the members who undertake the executive duty. Thus, CEO and other senior managers will serve as executive directors on the board of a Chinese listed company(Wei, 2000). However, there was no mention of independent directors in CCL 1994.

Figure 2.1 structure of board of directors and board of supervisors
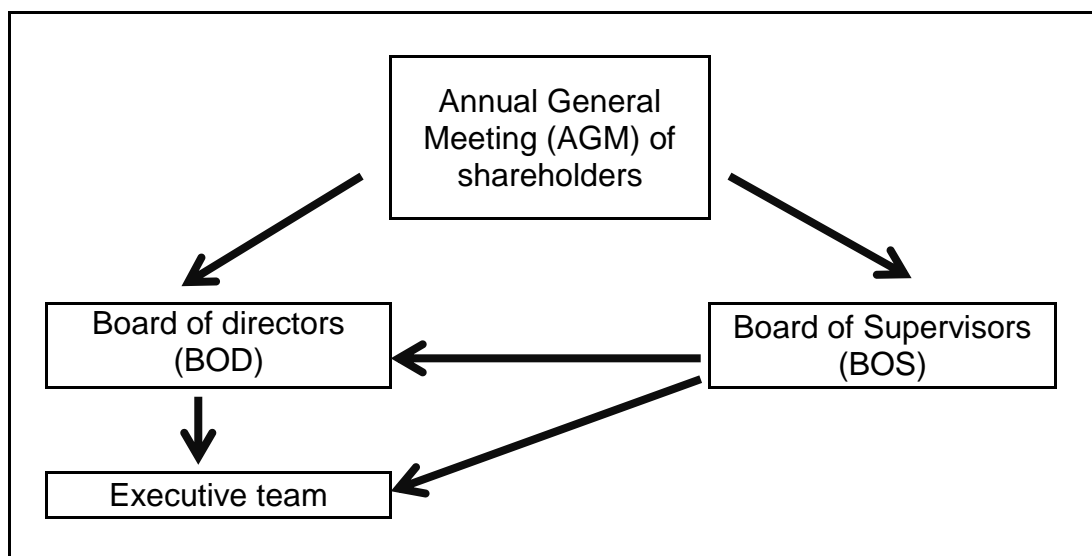
2.3.2. Ownership structure

Generally, Chinese listed companies offer three types of shares, which are A-shares, B-shares, and H-shares, to different investors. A-shares and B-shares are offered and exchanged in the Chinese domestic stock exchanges, but H-shares are offered and exchanged in the Hong Kong market (Chiou and Lin, 2005). A-shares are denominated in Renminbi (RMB); B-shares are denominated in US Dollars (USD); and H-shares are traded in Hong Kong Dollars (HKD). The majority of shares that are issued by Chinese listed companies are A-shares. The Chinese Securities Regulation Commission (CSRC), which is the Chinese market watchdog, requires that the minimum percentage of A-shares is 25% of the total shares (Berkman *et al.*, 2009). A-shares are divided into two categories: tradable shares and non-tradable shares. Chiou and Lin (2005) point out that the proportion of non-tradable shares is much higher than that of tradable shares.

Shareholders of non-tradable shares of the Chinese listed companies can be divided into two groups: 1) the state shareholders and 2) the legal person shareholders (Berkman *et al.,* 2009). The State shareholders include central and local government, and other large SOEs. Legal person shareholders are the domestic corporations and non-individual investors (Berkman *et al.*, 2010). 'Hence this category includes shares held by the government through legal-person entities, as well as shares held by private entities, both domestic and foreign' (Berkman *et al.*, 2010:8).Chen *et al.* (2009:173) also state that the 'legal person shares can be owned by a number of heterogeneous entities, ranging from solely state owned enterprises to private firms'.

Shareholders of the tradable shares include: individual investors, institutional investors, foreign investors, and the state. These shareholders can directly purchase tradable shares in the two domestic exchanges. After 2001, all

investors are allowed to trade A-shares and B-shares in the two domestic stock exchanges, and these investors include domestic investors, foreign investors, qualified domestic institutional investors (QDII) and qualified foreign institutional investors (QFII) (Allen *et al.*, 2007).

In western companies, the compensation package of executives and directors includes shares and stock options. In the Chinese market, however, companies are less inclined to give managerial ownership to employees (Firth *et al.*, 2007). Firth *et al.*(2007) find that the lack of executive stock options is the reason for the low proportion of managerial ownership in Chinese listed companies.

2.3.3. External regulation of the Chinese stock market

Besides the internal corporate governance mechanism, investor protection also depends on external regulation mechanisms. External regulation strengthens the internal governance mechanism, since it is mandatory. Berkman *et al.*(2009) point out that the efficiency of the external regulation of the Chinese market is weaker than that of its overseas peers.

Before 1998, Chinese financial market was regulated by various of government departments (Tan, 1999). These departments included the People's Bank of China, which is the central bank of China, the State Council Securities Commission (SCSC) and its executive organ, the China Securities Regulation Commissions (CSRC), the Ministry of Treasury, and the State Development Planning Commission This regulation system reduced the performance of market regulation, since there was no specialized market

regulatory agency. In 1998, the Chinese government reformed the regulatory system of the Chinese securities market with the integration of SCSC and CSRC. After that, CSRC became the primary regulatory agency of the Chinese securities market(Liebman and Milhaupt, 2007; Shen, 2008).

However, the practical performance of the Chinese market regulatory agency does not reach the expectation of investors (Shen, 2008). Shen (2008) studied the reasons for low regulatory performance of CSRC. The primary reason for the poor performance of CSRC is its dual role: CSRC has to deal with the conflict between the market mechanism and the government. Thus, the dual role of CSRC restricts its regulatory effectiveness. Secondly, CSRC needs more power to regulate insider trading activities in the Chinese market. Currently, the CSRC is empowered to freeze the relevant transaction record, communication record and the bank account, to facilitate an insider trading investigation. However, CSRC still lacks the power to prosecute via civil litigation or the power to subpoena suspects. Thirdly, CSRC needs more resources to support investigations and enforcement activities.

In the Chinese market, the People's Prosecutors are empowered to prosecute criminal litigation against market fraud activities (Shen, 2008). However, the People's Prosecutors lack experience, knowledge, and the experience of investigating of financial market fraud activities (Shen, 2008). Therefore, the CSRC is not supported by other legal institutions.

After 2000, China became a member of WTO. As a response to this event, the Chinese congress and the Chinese government amended or abandoned a series of inappropriate laws and codes.

The first new regulation substantially increased the right of minority shareholders at a firm's Annual Shareholders' Meeting and reduced the voting rights of parties involved in related party trading; the second prohibited the issuance of loan guarantees by a firm to its controlling shareholder; and the third improved the transparency and regulation of asset transfer to related parties (Berkman *et al.,* 2009:2).

However, market participants, especially the small shareholders, believed that these new regulatory activities would be selectively enforced and favour the state owned listed companies (Berkman *et al.,* 2009). Because of the influence of the state, the watchdog of the Chinese market cannot effectively enforce the law, since the market regulatory agency is a department of the state itself. This phenomenon becomes more serious if state owned listed companies are involved in a case of market fraud (Allen *et al.,* 2007).

The Chinese judicial system is another reason that reduces the efficiency of the legislation because it is deeply influenced by political factors. Additionally, 'the Chinese court system has a long tradition of protecting State interests and has very little experience of private plaintiff-driven litigation' (Berkman *et al.,* 2009:9). Thus, the Chinese judicial system reduces the effect of new legislation intended to protect the small shareholder (Allen *et al.,* 2007). Help from lawyers in private litigation is also poor in China (Allen *et al.,* 2007). 'Lawyers represent only 10-25% of all clients in civil litigation and business cases, and even in criminal prosecutions, lawyers represent only half the cases' (Allen *et al.,* 2007:31). The unsophisticated legal system means that small investors cannot get effective protection from the external market litigations.

2.3.4. Chinese stock exchanges

At the beginning of the 1990s, the Chinese government established stock markets in Shang Hai and Shen Zhen - the Shang Hai Stock Exchange (SHSE) and the Shen Zhen Stock Exchange (SZSE). Companies listed in the SHSE tend to be larger, more prominent in their industry sector, and closer to the government (Liebman and Milhaupt. 2007).

The primary function of the Chinese stock exchanges is to allow the listed SOEs issue stocks to raise funds from the capital market (Zhang, 2004; Tang *et al.*, 2006). In the two stock exchanges, listed SOEs and other listed companies can raise extra financial resources through initial public offering (IPO) and other activities (Zhang, 2004). The majority of listed companies in the two stock exchanges are state owned listed companies. IPO of listed companies and issuance of new shares have to be permitted by CSRC, and a large volume share transaction has to be approved by the CSRC (Kato and Long, 2006).

Neither of these two stock exchanges are independent from the government; thus both of them are deeply influenced by state preferences (Clarke, 2006; Liebman and Milhaupt, 2007). Under these circumstances, stock exchanges cannot become self-regulating authorities to monitor the activities of the state owned listed companies (Clarke, 2006; Liebman and Milhaupt, 2007). In the British and the US markets, the stock exchange serves as an independent self-regulatory agent to protect the rights of small investors; however, the Chinese stock exchanges fail to provide protection to small investors (Liebman and Milhaupt, 2007). Although Chinese Securities Law was amended to provide self-regulatory power to two stock exchanges, these self-regulatory powers are still influenced by the public regulatory agency (Liebman and Milhaupt, 2007).

2.4. Criticisms of corporate governance and recent reforms

Figure 2.2 criticisms of corporate governance of Chinese listed companies

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┌──────────────────────────────────────────────────────────┐
│                                                            │
│              ┌─────────────────────────────┐               │
│              │  Board of directors:  Ineffective │          │
│              │     independent directors   │               │
│              └─────────────────────────────┘               │
│                            │                               │
│                            ▼                               │
│              ┌─────────────────────────────┐               │
│              │   Criticisms of Corporate   │               │
│              │        Governance           │               │
│              └─────────────────────────────┘               │
│                    ▲             ▲                         │
│                    │             │                         │
│  ┌──────────────────────────┐  ┌──────────────────────────┐│
│  │ Board of supervisors:  Function │  │        Ownership          ││
│  │  needs to be reconsidered   │  │ structure:  Inappropriate designing ││
│  └──────────────────────────┘  └──────────────────────────┘│
│                                                            │
└──────────────────────────────────────────────────────────┘
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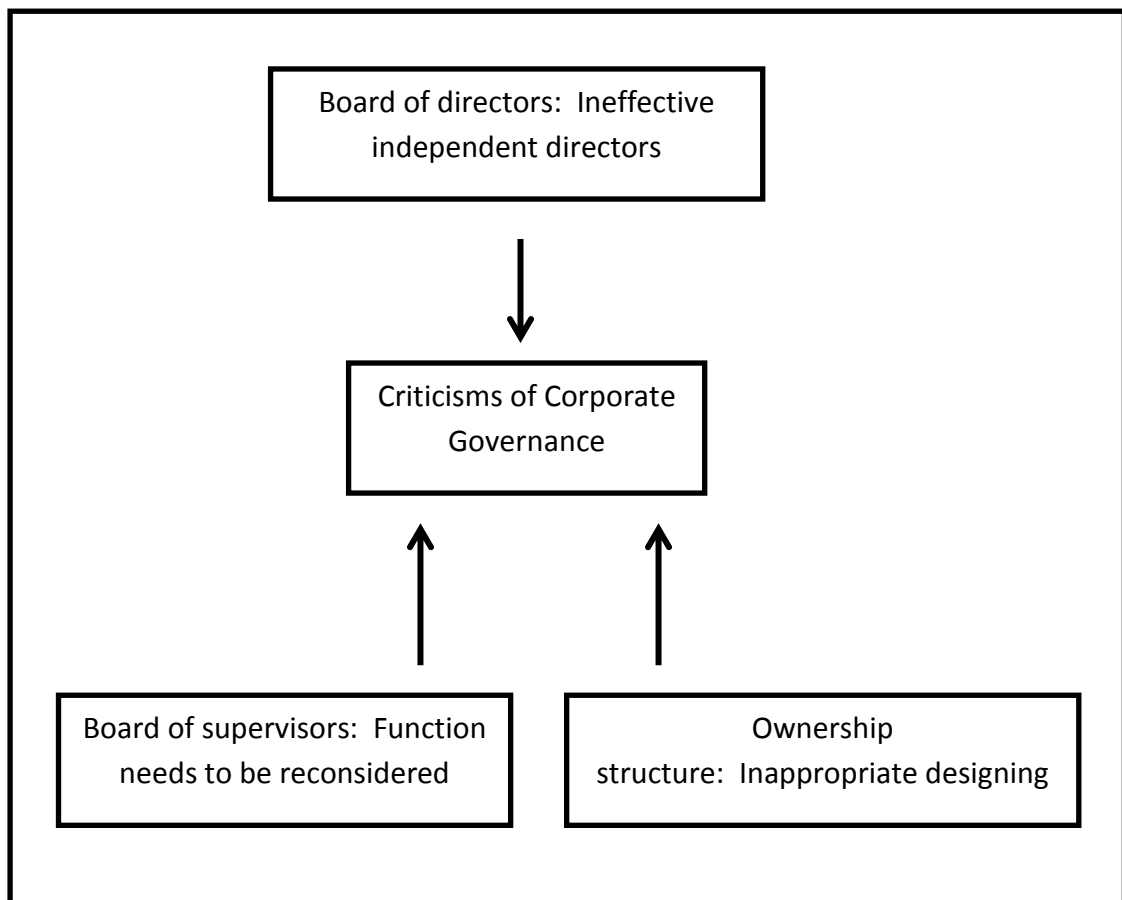
China is trying to adopt the practices of corporate governance learnt from the experiences of western companies. However, current corporate governance practices of Chinese listed companies, which were adopted from the western markets, are not working well (Tam, 2000). The first criticism of Chinese listed companies is the low corporate management transparency. Qu and Leung (2006) point out that investors complain that the transparency of Chinese corporations is lower than their expectation. Chinese listed companies disclose

25

less information to the market. This causes serious information asymmetry and has resulted in a series of financial scandals. However, Qu and Leung (2006) argue that the quality of the corporate disclosure cannot be changed quickly, due to the influence of Chinese culture. Chinese business people prefer to disclose less information to the market, to avoid inadvertent disclosure of information to their competitors.

In 2002, CSRC, the Chinese market watchdog, promulgated a new code of corporate governance to increase the quality of corporate governance of Chinese companies. Rajagopalan and Zhan (2008) state that the promulgation of *Code of Corporate Governance of Listed Companies* was driven by the series of financial scandals in the US and Chinese markets. The new code contains the following principles to increase the quality of corporate governance of the Chinese listed companies:

1) Transparent procedures must be established to select the board of directors.

2) If the controlling shareholder owns a stake in excess of 30%, a cumulative voting mechanism must be adopted to ensure that the voting interests of minority shareholders are given appropriate consideration.

3) There must be at least two independent directors on or before June 30, 2002, and one-third of the board members must be independent directors on or before June 30, 2003.

4) Members of the board of supervisors must be given access to information related to operational status and must be allowed

to hire independent intermediary agencies for professional consultation.

5) Corporate governance-related information (e.g., the composition of the board of directors and the board of supervisors, the attendance records of independent directors) must be disclosed.

6) Prices of related-party transactions must be fully disclosed, and listed companies cannot provide financial collateral to related entities.

7) Detailed information on controlling shareholders must be promptly released, and listed companies cannot provide financial collateral to related entities.

8) The establishment of functional subcommittees and their operating details, discrepancies between the existing situation and the requirements of the code, and the corporate governance improvement plan must be disclosed (Rajagopalan *et al.*, 2008:58-59).

Additionally, for the first time the *Code of Corporate Governance of Listed Companies* introduced independent directors to Chinese listed companies (Tang, 2008). In 1995, Chinese companies which were listed in the overseas markets introduced independent directors, as required by the regulatory rules of the foreign markets. Yet the majority of Chinese listed companies, which were listed in the domestic exchanges (SHSE and SZSE), did not introduce the system of independent directors(Yuan, 2008; Qu, 2009). On 16th of August, 2001, CSRC promulgated the *Guidance of Introducing Independent Directors in*

Listed Companies to require all listed companies to appoint independent directors. This guidance provides the definition of independent directors(Clarke, 2006; Liu, 2009), which includes:

1) he/she must not hold a position in the listed company or its affiliated enterprises, nor can their direct relatives or their major social relations hold such position in such enterprises;

2) he/she must not hold more than 1% of the outstanding shares of the listed company directly or indirectly;

3) he/she must not hold a position in a unit which holds more than 5% of the outstanding shares of the listed company directly or indirectly, or of the unit which ranks as one of the five largest shareholders of the listed company;

4) he/she must also satisfy any of the above conditions in the immediate proceeding year;

5) he/she must not provide financial, legal or consulting services to the listed company or its subsidiaries;

6) he/she must not be the person stipulated in the articles of association as someone who is inappropriate to take up such a position;

7) he/she must not be the person determined by the CSRC as an inappropriate person for such a post (Wang, 2005:143).

In legislative terms, the Chinese congress amended the old CCL 1994 to make independent directors a mandatory requirement for all Chinese listed companies, with the minimum proportion of independent directors of a board to be one-third.

Conventional wisdom predicts that independent directors will increase the quality of corporate governance, for they are independent from the corporate managerial team. However, in practice, Xiao and Yu (2007), Feng (2008) and Yuan (2009) find that board independence has no significant effect on the quality of corporate governance of the Chinese listed companies. There are several reasons for these findings.

Firstly, the nomination of independent directors is distorted. Wang (2005), Allen *et al.* (2007), Lau *et al.* (2007), and Rajagopalan and Zhang (2008) state that independent directors of Chinese listed companies are controlled by the corporate managerial teams of those companies. Jiang (2009a), Jiang (2009b), Liu (2009), Zhang (2009a), Gu (2009), Qu (2009), Yuan (2009), Zhou (2009) point out that the special ownership structure of Chinese listed companies gives opportunities to the holding (majority) shareholders to control the nomination and appointment of independent directors. Under this circumstance, independent directors have no incentive to monitor either the managerial team or the majority (holding) shareholders. Thus, these nominal independent directors lead to small shareholders being easily expropriated by large shareholders and executives.

Secondly, the Chinese market lacks the human resource to meet the qualification demands for the role of independent director of its listed companies (Wang, 2006; Rajagopalan and Zhang, 2008; Feng, 2008; Jiang, 2009; Liu, 2009; Zhang, 2009; Gu, 2009; Qu, 2009; Yuan, 2009; Zhou, 2009). The majority of independent directors are people who lack experience in management and financial auditing. Thus, these candidates cannot work as qualified independent directors in Chinese listed companies.

Thirdly, a system defect of the corporate governance mechanism leads to independent directors failing to increase the quality of corporate governance of the Chinese listed companies. Yuan (2009), Qu (2009), Gu (2009), Jiang (2009) point out that there is a conflict of roles between independent directors and the board of supervisors. The role duplication causes the boards of supervisors and of independent directors to become rivals of each other. Thus, this supervision structure reduces the performance of independent directors.

Fourthly, the Chinese market lacks a complete legal regime to facilitate the system of independent directors (Jiang, 2009; Qu, 2009). Relevant regulations fail to define the duty of independent directors. Additionally, independent directors do not have legal liabilities under the current regulation regime. Thus, the unsophisticated requirement for the role of independent directors in Chinese companies result in a lack of efficiency in their use.

Fifthly, independent directors lack effective financial incentives. Independent directors of Chinese listed companies will be awarded salary (Jiang, 2009; Gu, 2009; Zhang, 2009; Qu, 2009; Liu, 2009). However, the salary of independent directors will be influenced by the company's executives. Thus, to some extent independent directors of Chinese listed companies are monitored by corporate executives.

Sixthly, low board independence also limits the effectiveness of independent directors. The CCL requires that all of the listed companies must introduce independent directors, and the minimum proportion of independent directors is one-third. Thus, most of Chinese listed companies comply with this rule. However, very few of companies want to increase the board's percentage of independent directors beyond the minimum.

The third criticism of the current corporate governance practice of Chinese listed companies is the establishment of a board of supervisors. The Chinese market watchdog requires that all listed companies build a two-pillar internal governance mechanism, which consists of a board of directors and a board of supervisors. This special internal governance mechanism is unlike the Anglo-Saxon style or the European Style. In the Anglo–Saxon internal governance system, the shareholders elect the board of directors, and the board of directors has the duty of monitoring the managerial activities of the corporate executive team. In the European internal governance system, the corporate stakeholders, which include shareholders and corporate employees, elect the board of supervisors to serve as the top authority in a company, to monitor the managerial activities. The board of directors and the managerial team in the European companies assume managerial duty. In the Chinese internal governance system, however, the board of directors and the board of supervisors exist at the same level in the hierarchy, and assume the same duty, that of monitoring managerial activities. Although Firth *et al.* (2007:493) argue that a large and active board of supervisors can 'improve the earnings-returns association, reduce absolute discretionary accruals, and have higher quality financial statements based on the auditor's opinion', the conflict of role between the supervisory board and the independent directors reduces the efficiency of the setting up of a board of supervisors. Secondly, the board of supervisors lacks real supervisory power to monitor the quality of internal governance (Li *et al.*, 2005). In the old CCL, the board of supervisors had a purely secondary role rather than being an effective supervisory institution. In CCL 1994, the only power of a board of supervisors was to suggest to the managerial staff that they correct their managerial wrongdoings. The board of supervisors also lacked the

power to dismiss members of the corporate managerial team who were engaged in corporate wrongdoings. As a consequence of this, shareholders of Chinese listed companies were less inclined to consider the board of supervisors as an effective regulatory body or care about its performance (Dahya *et al.*, 2003).

The new CCL provides real power to the board of supervisors to help it become a genuine supervision institution in the companies. Under the new CCL, the board of supervisors has the power to prosecute members of the managerial team, if their activities expropriate the rights of corporate shareholders. This new power will increase the deterrent effect of the board of supervisors. However, the nomination of members to the board of supervisors is still controlled by the majority (holding) shareholders and therefore this reduces the deterrent value of the new power. Although members of the board of supervisors are supposed to be elected by the general meeting of shareholders, the abnormal ownership structure of Chinese companies causes the nomination process of the board of supervisors to be distorted by the majority (holding) shareholders. The majority (holding) shareholders, inevitably, have the desire to appoint their supporters to serve as members of the supervisory board (Dahya *et al.*, 2003; Li *et al.*, 2005). Hence, in Chinese listed companies, boards of supervisors have less incentive to monitor the executives, due to the intrinsic relationship between supervisors and shareholders.

The last and the most serious criticism of the Chinese corporate governance system is the inappropriate ownership structure of Chinese listed companies. To some extent, this ownership structure is the cause of many of the problems in the corporate governance of Chinese companies (Wei and

Geng, 2008). The Chinese stock market is different from other developed markets, due to the existence of stock segmentation and the majority (holding) shareholder. Stock segmentation classifies shares of Chinese listed companies into two major categories, which are tradable shares and non-tradable shares. The majority (holding) shareholder has a dominant power in the Chinese listed companies, and this makes it impossible for other small shareholders to challenge them.

Non-tradable shares are a unique characteristic of the Chinese stock market. Non-tradable shares cannot be freely exchanged in the secondary market. However, the rights and obligations of non-tradable shares are the same as that of tradable shares. The majority of state shares, legal person shares, and shares of company founders are non-tradable shares. During the process of SOEs reform, the former SOEs become corporatized SOEs. Assets of these enterprises were divided into original shares. The state, along with other institutional investors and individuals, purchased these original shares. After listing, some of the original shares, which were purchased by the state and state-oriented institutions, become the non-tradable shares. The purpose of the existence of non-tradable shares is to reduce the unknown impact of listing. The long history of a planning oriented economic mechanism means that the SOEs lack experience of listed company management. Therefore, the existence of non-tradable shares gives the listed SOEs time to learn from relevant experience. However, this share segmentation has a serious of weakness. Firstly, the majority of non-tradable shares are held by the state. As the founder of SOEs, the state easily holds the majority of the original shares. The second type of shareholder of non-tradable shares is the legal person shareholder. However, these shareholdings are based on the residual value of SOEs during

33

the decentralization. Thus, these shareholders are indirectly influenced by the state (Song, 2008). Although employees of SOEs also hold the original shares, the amount of their shares is too small to influence a company's operation. Therefore, the largest original shareholder is the state, and its influence is too big to be challenged.

Secondly, non-tradable shares mean that the market mechanism cannot influence listed company operation. Tomasic and Fu (2006) point out that the inappropriate proportion of non-tradable shares makes Chinese listed companies unable to take full advantage of corporatization. Xu *et al.* (2005) point out that the inappropriate proportion of non-tradable shares prevents takeover and other mechanisms from increasing the quality of company operation and thereby improving performance. The low liquidity of non-tradable shares causes the large shareholders of non-tradable shares to be well entrenched. Thus, other small shareholders are easily expropriated by these large shareholders. Huang and Fung (2005) state that the existence of non-tradable shares causes serious information asymmetry in the Chinese stock market.

The second unique aspect of the ownership structure of Chinese companies is the majority (holding) shareholders. As mentioned, during the process of corporatization the state held the majority of original shares of SOEs and these original shares became non-tradable shares after listing. Therefore, the state became the majority (holding) shareholder of most new listed companies. At the beginning of the Chinese stock market, all listed companies were SOEs and there were no private listed companies. Nowadays, although the state sells some SOEs to private investors and private companies are

permitted to be listed on the stock exchanges, the inappropriate ownership structure still remains. Ownership concentration adds a positive effect to the quality of corporate governance (Gaspar and Massa, 2007; Chen-Lung *et al.*, 2009), but inappropriate ownership concentration impairs the quality of corporate governance (Faccio *et al.*, 2001; Anderson and Reeb, 2004; López-de-Foronda *et al.*, 2007). The CCL stipulates that one share equals one vote, and that all the important managerial decisions must be approved by two-thirds of the votes. The majority (holding) shareholders of the Chinese listed companies hold the most shares in their companies. Thus, Chinese listed companies are deeply influenced by the preferences of majority (holding) shareholders. Under this circumstance, the board of directors, the board of supervisors, and the managerial team have to comply with the interest of majority (Holding) shareholders. Other shareholders have fewer opportunities to enter the process of decision making to protect their interests. Thus, small shareholders become passive decision makers while still having to bear the cost of managerial decisions they are powerless to prevent. Liu and Sun(2005) point out that ownership structure makes a difference to firm performance of the Chinese companies. Chen *et al.* (2007b:135) state that 'firms under the control of large state shareholders have poorer performance than that under the control of large non-state shareholders'. Chen *et al.* (2007b) state that a reduction of political control will increase company performance. Therefore, the current ownership structure of the Chinese listed companies needs to be reformed.

In response to the criticisms, the Chinese government began to reform the inappropriate ownership structure of Chinese listed companies. On 31st of Jan, 2004, CSRC announced its reform proposal to the market. In May of 2005, CSRC officially disclosed the guidance of ownership reform for Chinese listed

companies. By the end of 2007, nearly all Chinese listed companies had disclosed their ownership structure reform plans. According to these plans, companies would gradually transfer their non-tradable shares to tradable shares. These reform plans also included a compensation mechanism for tradable shareholders, for the price spread between non-tradable shares and tradable shares. At the beginning of corporatization, the original shares were not priced through the market mechanism. Therefore, the price of the original shares was lower than its market value. Once listed, the shareholders of tradable shares had to purchase tradable shares at the market price. Thus, there was a price spread between the non-tradable and the tradable shares. Under this circumstance, the shareholders of tradable shares believed that their rights were impaired since the shareholders of non-tradable shares benefited from the price spread. Without an optimal compensation mechanism to offset the cost of price spread the reform of ownership structure would be a failure. Therefore, non-tradable shareholders promised to compensate the price spread to tradable shareholders. To reduce the negative effect of state shareholding on firm performance, the government also decided to exit from the non-key industries in order to concentrate the national resource on the key industries. The government defined Military, Power and Grid, Petroleum and Petrochemical, Telecom, Coal, Civil Aviation and Shipping as the seven key industries that must be dominated by the state. In the non-key industries, the state would gradually transfer its dominant power to private investors, thereby reducing the influence of the state to some extent.

2.5. New legislation

As an important pillar of the corporate governance mechanism, external regulation of the Chinese market has also been experiencing reform during the last few years. On January 1, 2006, the new Company Law of the P.R.China (CCL) 2006 and the new Securities Law of the P.R. China (CSL) 2006 came into effect. These new laws increase the power of corporate shareholders, especially the power of the small shareholders, which in turn improves the quality of corporate governance in the Chinese market.

Compared with the CSL 1999, the CSL 2006 gives the CSRC more regulatory power to control fraudulent market activities. According to the relevant provisions of the CSL 2006, the CSRC has the power to freeze the cash, securities and other capital of illegal transactions. This new power motivates CSRC to withhold the revenue from illegal transactions, and thus compensate investors for the damage. At the same time, the CSRC now has power to seize important evidence concerning illegal transactions. Under the CSL 1999, the CSRC did not have the power of seizure of key evidence in illegal transactions, and so participants in illegal activities had time to destroy or modify key evidence, and thus undermine effective inspection by the market watchdog. New regulatory power will reduce this phenomenon and increase the possibility of effective illegal transaction inspection, as key evidence of illegal transactions will be seized by the CSRC.

The CSL 2006 requires an authoritative member of the managerial team, such as the CEO, to sign important financial disclosures to ensure the quality and veracity of the content of that disclosure. The managerial teams, the board of directors, and the board of supervisors have to ensure the veracity, accuracy, and integrity of any corporate disclosure. The purpose of this new requirement

is to reduce the serious information asymmetry in the Chinese stock market. If the company discloses false information to mislead market investment behaviour, and such institutions fail to prove they are innocent, the board of directors, the board of supervisors, and the majority (holding) shareholders, are liable for the compensation of the shareholders. Therefore, the board of directors, the board of supervisors, and the majority (holding) shareholder have to take great care over the content of financial disclosure to reduce the incidence of false financial disclosure.

The CSL 2006 clearly bans the short-term transaction. In the old CSL there is no restriction on short term transactions and corporate insiders could benefit from short term transaction. The short term transaction is a typical insider trading transaction for corporate insiders needs to trade their shares quickly. Therefore, the restriction of short term transactions forces corporate insiders to keep shares of their companies for a long time, thereby reducing information advantage of corporate insiders. The CSL 2006 forbids directors, supervisors, top executives, and shareholders, who hold over 5 per cent shares, from taking the short swing trading strategy. The board of directors has a duty to order corporate insiders to give the benefit of short-term transactions to the company. If the board fails to require corporate insiders to do this, the small shareholders can launch derivative lawsuits to correct this and the relevant directors will become the defendants in such lawsuits.

The CSL 2006 extends the definition of corporate insiders. Besides the definition of corporate insiders of the old CSL, the CSL 2006 considers that the staff of securities companies, stock exchanges securities service companies, majority (holding) shareholder companies, and the staff of sub-companies of the

majority (holding) shareholder companies, can all be regarded as corporate insiders. The extension of this definition of corporate insiders will prevent the incidence of insider trading activities in the market as more people will be considered corporate insiders. Additionally, CSL 2006 increases the penalty for insider trading activities.

Compared with the CCL 1999, the CCL 2006 clearly defines the qualification and duty of the directors, the supervisors and the top executives. In the old CCL there was no clear definition of the qualification and duty of directors, supervisors, and top executives. Thus, under the new CCL 2006, unqualified people have less opportunity to serve as directors, supervisors and top executives of the companies. These provisos of the CCL 2006 motivate Chinese listed companies to increase the quality of their corporate governance.

The CCL 2006 provides the board of supervisors with more power to monitor top corporate staff. Firstly, the board of supervisors has the right to advise the general meeting of shareholders to fire directors and executives who breach the company's constitution. Secondly, if the board of directors fails to call a general meeting of shareholders, the board of supervisors has the right to call a general meeting of shareholders. Thirdly, the board of supervisors has the right to propose a bill to the general meeting of shareholders. Fourthly, supervisors have the right to prosecute the directors and the executives, if they breach the duties of their role and thereby impair the rights of the company. These new powers motivate the board of supervisors to monitor the directors and the executives of the company and thus increase the quality of corporate governance.

2.6. Cultural analysis of China

2.6.1. Basic Confucian beliefs

Hofstede (1980, cited in Qu and Leung, 2006: 243-244) identifies four dimensions of the societal culture:

1) large versus small power distance, the extent to which the member of a society accepts that power in institutions and organisations is distributed unequally;

2) individualism versus collectivism, which stands for a preference for a loosely knit social framework in society wherein individuals are supposed to take care of themselves and their immediate families only, versus a preference for a tightly knit framework in which individuals can expect their relatives clan, or other in-group to look after them in exchange for unquestioning loyalty;

3) strong avoidance versus weak uncertainty avoidance is related to the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity ; and

4) masculinity versus femininity, which stands for a preference in society for achievement, heroism, assertiveness and material success versus a preference for relationships, modesty, caring for the weak and the quality of life.

Based on these four dimensions, Hofstede and Bond (1988) point out that the Chinese society is characterised by large power distance conservative, long-term orientation, collectivism and femininity.

During the long history of civilization of Chinese society, the core principles of social value of Chinese society are Confucian values (Miles, 2006; Qu and Leung, 2006) which have influenced the Chinese people for over 2,000 years.

Confucius, to some extent, is the greatest master in Chinese history and created the Confucian values in the sixth to fifth century BC. The core principal of Confucian values is the moral standard and social philosophy. Additionally, people have to be sincere, benevolent, show filial piety, and propriety. Miles (2006:305-306) states that Confucians believe that the 'basis of a stable, unified, and lasting social order is through living according to civilized and cultured principles developed through human wisdom, not through the imposition of strict laws on individuals'. To maintain social integrity and harmony, there must be good moral example. Additionally the knowledge of the older generation has a strong influence within Chinese society. Under the influence of Confucians, conservative and submissive people can be easily seen as good moral examples. Confucians consider people who attempt to change the existing social order as examples of the immoral.

2.6.2. Anglo-American corporate governance and guanxi network in Chinese society

In the Anglo-American companies, directors of companies prioritize the interests of the corporate shareholders above other stakeholders. In the Anglo-Saxon style companies, ownership is separated from control, and the ownership is always dispersed across different shareholders. Therefore, shareholders can only passively monitor managerial activities. To solve this problem, shareholders elect an independent board of directors to monitor the managerial team. At the same time, the market promotes takeover activities to increase the quality of corporate governance. If the corporate insiders break their roles and therefore cause damage to corporate shareholders, the corporate shareholders will ask such corporate insiders pay a remedy to offset the damage. Mile (2006:306) states that the Anglo-Saxon legal systems which 'regulate the legal relationship

between directors and the company and between directors and shareholders are highly developed, detailed, and sophisticated'. Traditional corporate governance theory always presumes that corporate executives have more incentives to pursue self-interest activities. Thus, shareholders are more likely to use prosecution as a way of obtaining remedy from the executives. The sophisticated legal system facilitates shareholders to prosecute more lawsuits to protect their rights. 'Anglo-American societies are therefore highly litigious' (Mile 2006:307). Generally, in western societies and companies, the contract within organisations will determine the relationship and interactions among the participants of the organisations. The sophisticated external legal system will deter the individual from attempting to break the contract, which is accepted by majority of the participants.

However, in the Confucian society, especially in the Chinese society, relationship and interactions among the organizational participants is more determined by the guanxi network. To some extent guanxi is the fundamental factor of Chinese society, and Chinese society is the consequence of a complex guanxi network. Farh *et al.* (1997) and Farh *et al.* (1998) classified guanxi of the traditional Chinese society into five categories: 1) emperor-subject, 2) father-son, 3) husband-wife, 4) elder-younger, and 5) friend-friend. Nowadays, the guanxi of emperor-subject has disappeared. The rest of the other categories still affect the Chinese people. 'The practice of guanxi stems from Confucianism, which fostered the broad cultural aspects of collectivism manifested in the importance of networks of interpersonal relations' (Park and Luo, 2001: 455). Xin and Pearce (1996) argue that the guanxi is very important to the conduct of business in Chinese society. The guanxi network can be a predetermined relationship that has a common behaviour expectation and down plays

individual desire, e.g. the guanxi between family members. Or the guanxi network can be a consequence of active social activities, e.g. the guanxi between friends. Thus, building and interaction of the guanxi network is complex since the individuals of a guanxi network always have the dual-role status: the passive follower and active initiator (Yang, 1994).

In the Chinese society, guanxi network has four characteristics: transferable, reciprocal, intangible, and utilitarian (Park and Luo, 2001). Through a guanxi network, two unrelated individuals will contact each other with a common connection. In a guanxi network all participants have to provide favours to other participants: if a person has received a favour within this guanxi network, the favour must be returned or he/she will be considered an untrustworthy individual. In fact, the guanxi network is not a written contract and it is hard to measure solely in fiscal terms. Finally, the factor that drives people to be part of the guanxi network in Chinese society is the exchange of benefit. In other words, if there were no exchange of benefit, there would be no desire to be part of a good guanxi network.

Although the economic reform which started 30 years ago leads to Chinese people beginning to accept the legislation in their social life, the guanxi network still deeply influences Chinese society. Additionally, Johnston (1997), and Luo (2002) state that the unsophisticated legal and contract system leads Chinese society, especially business people, to rely on the guanxi network to facilitate the conduct of business in the Chinese market. Thus, Braendle Gasser et al.(2005:390) argue that the guanxi network has 'deeply rooted forces and may take precedence over legitimate decision based on laws or regulations'. Thus, in the Chinese market, good guanxi network is an important business resource for the companies.

At the same time, the complex guanxi network is a criticised aspect of the Chinese market. In business conduct, Chinese business people prefer to establish a good guanxi network. Besides the guanxi network of business-to-business (B2B), Chinese business people prefer to seek the guanxi network of business-to-government (B2G). A good B2B relationship will help the companies easily find alliances and it facilitates the exchange of business resource in the market. Conversely, the B2G relationship will lead to serious consequences, one of which is political corruption, which will in turn impair the quality of corporate governance of those companies (Shleifer and Vishny, 1993).

Nye (1967:419) defines corruption as behaviour

...which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique), pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence. This includes such behaviour as bribery (use of a reward to pervert the judgment of a person in a position of trust); and misappropriation (illegal appropriation of public resources for private-regarding uses).

To some extent, political corruption is the most critical aspect of the Chinese market. Corruption breaks market fairness, since it allows business people to bypass market regulation. Additionally, it impairs the reputation of the government and market regulation. The existence of the B2G relationship in the Chinese market prevents market regulation from being effectively enforced, and thus lowers the deterrence of market regulation.

To some extent, the guanxi network of the Chinese market prevents Chinese companies from being able to benefit from developing the corporate governance mechanism which is introduced from western companies. The guanxi network leads to corporate participants being more likely to bypass company contracts. Additionally, the guanxi network downplays the quality of the external regulation system and therefore leads to the external monitoring losing its function, which is an *ex post* solution to managerial wrongdoings. Thus, Chinese society should pay more attention to reducing the negative influence of guanxi networks.

2.7. Conclusion

This chapter set out to introduce the institutional background of the Chinese securities market.

Firstly, this chapter briefly introduced the economic development history of China. During last 30 years, China is trying to use the market oriented economic regime to replace the central planning oriented economic regime. One of results of this economic reform is the introduction of a corporate governance mechanism in Chinese listed companies.

Secondly, this chapter described the characteristics of the corporate governance mechanism of Chinese companies. In Chinese listed companies, shares are highly concentrated to the holding shareholder. The proportion of floated shares is higher than that of non-floated shares. The stock segmentation causes the holding shareholder to be entrenched in listed companies. Under this circumstance, the holding shareholder has power to affect most aspects of listed companies. Thus, this ownership structure generates several problems of corporate governance in Chinese listed companies.

Finally, this chapter briefly described the cultural background of the Chinese market. Under the influence of the values of Confucius, Chinese listed companies have less incentive to comply with the provisions of a good corporate governance mechanism. Additionally, Chinese society is based on personal relationships, rather than on contract relationships. Thus, this characteristic of Chinese society restricts the performance of corporate governance mechanism in Chinese listed companies.

Chapter 3. Literature review

3.1. Introduction

The purpose of this chapter is to review the relevant theories and previous studies, thereby developing the theoretical framework of this thesis. This chapter contains a section on theoretical background and a section on empirical evidence.

Firstly, the section on theoretical background briefly reviews the basic knowledge of corporate governance mechanisms. It introduces the purpose of a corporate governance mechanism and briefly introduces its components. Additionally, this section introduces the prospects for the future development of corporate governance.

Secondly, the section on theoretical background describes the relationship between information and securities markets. Because of information asymmetry, investors who have information advantages (e.g. inside information) will have an advantage over other investors. Insider trading activities destroy fairness and integrity in the securities market. Hence the market needs to regulate and restrict insider trading activities.

After the section on theoretical background, the section on empirical evidence collects previous relevant empirical studies of the relationship between corporate governance mechanism and firm performance. Ownership structure will affect firm performance. For instance, institutional ownership will increase firm performance (Gorton and Kahl, 2008). Characteristics of boards of directors will affect firm performance of the listed companies. For instance,

board size affects firm performance (Guest, 2009). The use of board subcommittees will increase firm performance, since it increases the quality of the corporate governance mechanism of listed companies. For example, an independent audit committee increases corporate transparency to align managerial activities with the interest of shareholders, thereby increasing firm performance (Koh *et al.*, 2007).

Secondly, the section on empirical evidence reviews previous studies of the relationship between the corporate governance mechanism and corporate transparency. The composition of a board of directors affects corporate transparency. For instance, board independence (the proportion of non-executive/independent directors to executive directors on the board) is a factor in the improvement of corporate transparency (Cornett *et al.*, 2009). Ownership structure also affects corporate transparency. For instance, institutional investors are a factor in the decrease in information asymmetry (Gaspar and Massa, 2007; Chen-Lung *et al.*, 2009). Additionally, the use of subcommittees ensures that listed companies convey more information to investors, thereby reducing the information asymmetry between companies and investors. The use of a compensation committee motivates listed companies to disclose more information to increase corporate transparency (Laksmana, 2008)

The figure 3.1 shows the theoretical framework of this thesis. Because of the separation of ownership and control, shareholders delegate the power of control to the agent. Under this circumstance, there will be conflict of interest between the principal (Shareholders) and the Agent (Executives). The cost of this conflict is the agency cost.

One of the agency costs is the information asymmetry between shareholders and companies. Increased information asymmetry will reduce the transparency of companies. Under this circumstance, a small portion of shareholders will try to seek a channel to access the information of companies. However, the majority of shareholders have no such opportunities to access that information. Thus, the corporate information will leak to some specific shareholders. These shareholders may use that leaked information in the market, thereby generating the problem of insider trading. Greater agency cost means that there will be more conflicts of interest among participants of companies. Under this circumstance, these conflicts of interest will reduce firm performance.

To reduce the agency cost, there are two theories: the agency theory and the stewardship theory. Under the agency theory, the agent will be considered as a self-interest institution. Thus, the principal, which is the shareholders, has to adopt more supervisory methods to monitor the agent. Alternatively, under the stewardship theory, the agent or the executives will be considered as a smart leader of the organisation. They have the ability to increase firm performance, which is in the common interest of all corporate participants.

The corporate governance mechanism is based on the agency theory. Generally, the internal governance mechanism relies on the board of directors, board subcommittees, and the ownership structure. A good internal corporate governance mechanism will reduce the information asymmetry and increase firm performance.

Figure 3.1 structure of theoretical framework
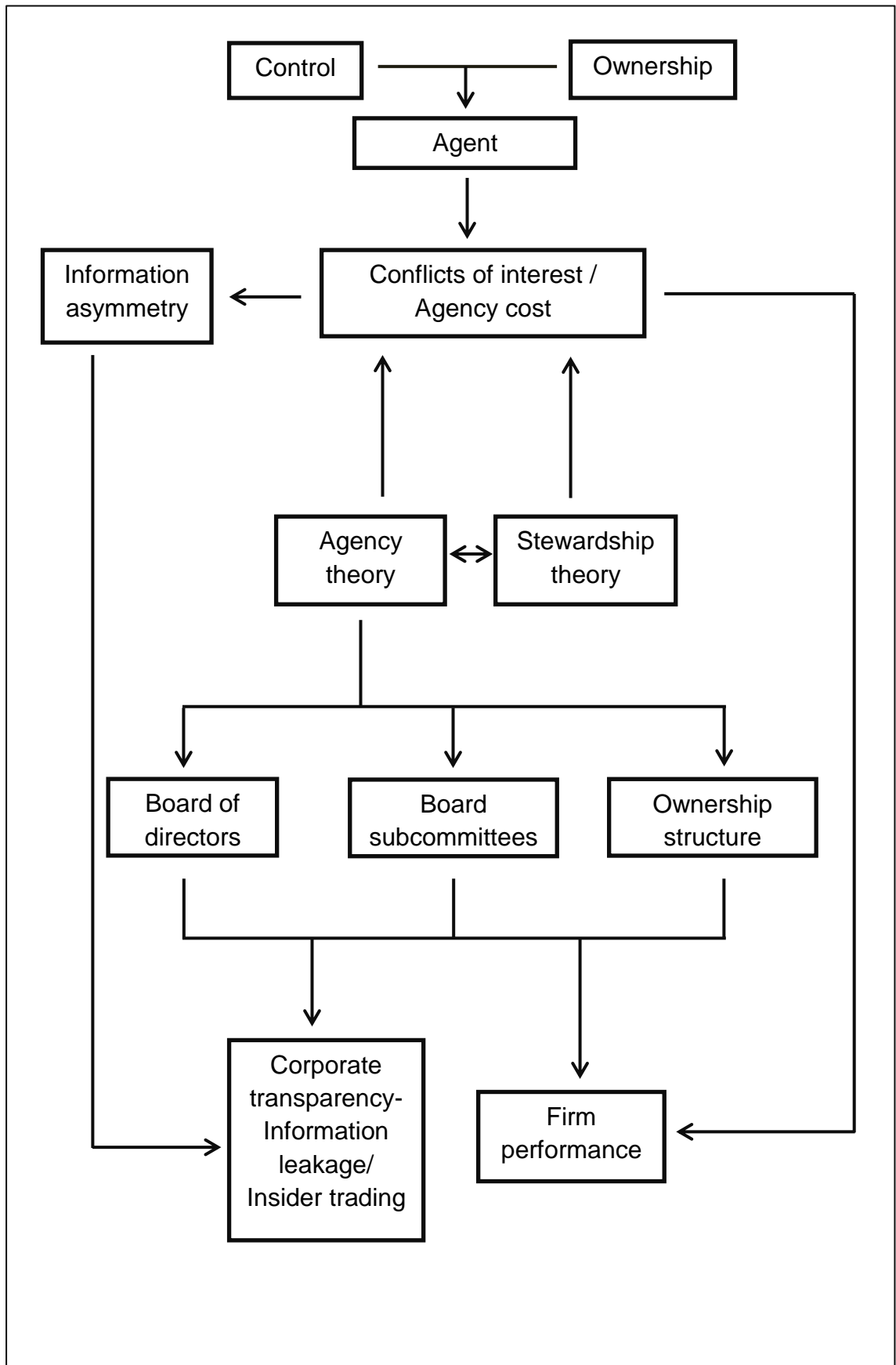
3.2. Theoretical background

Modern listed companies follow a structure which has separation of ownership and control. Owners of these companies cannot manage them directly because of their complex structure and large size (Berle and Means, 1968). Instead, the control of companies is delegated to a professional managerial team, which is known as an 'agent'. Because of the separation of ownership and control, there will be conflicts of interest between the owners and the managerial team; these conflicts may affect firm performance. Executives should maximise the welfare of shareholders, by making decisions which are in the shareholders' interest. However, the separation of ownership and control may lead to divergence between managerial decisions and the interest of shareholders (Jensen and Meckling, 1976). Corporate executives manage the content of corporate disclosure and the time of disclosure (Brunnermeier, 2005). This makes it impossible for the owners of companies to oversee the managerial team of companies effectively. To align managerial decisions with the shareholders' interest, shareholders may monitor executives' actions. At the same time, shareholders can provide incentives to motivate executives to align managerial decision-making with the interest of shareholders. For instance, shareholders will award stock or stock options to executives and directors (Kim *et al.*, 2010). In this case, their wealth will be positively related to firm performance. Thus, executives have an incentive to increase firm performance. The costs of monitoring and incentive provision, arising from the divergence of interest between shareholders and executives, are agency costs (Jensen and Meckling, 1976). As a result of agency costs, firm performance may be reduced.

There are also conflicts of interest among the owners of the companies themselves. Differences in percentages of ownership mean that owners of companies have various goals. Under this circumstance, conflicts of interest among owners of companies may have a negative impact on firm performance. An over-spread ownership structure will cause corporate executives to be less monitored (Hart, 1995). The over-spread ownership structure will exacerbate the 'free-rider' problem where many shareholders are unable to monitor executives. However, a greater ownership concentration in companies will generate serious conflicts of interest among shareholders (Dahya *et al.*, 2008). For instance, the related-party transaction of controlling shareholders damage firm performance (Clarke, 2007). The conflicts of interest among shareholders have the potential to increase the information asymmetry: for instance, there may be collusion between the controlling shareholder and the executives which exacerbates the information asymmetry to expropriate the interest of other small shareholders (Laidroo, 2009). The existing conflicts of interest damage firm performance and increase information asymmetry in the financial market.

Corporate governance is a market oriented mechanism that may align interest of various corporate participants of a corporation, and reduce the presence of information asymmetry between companies and shareholders. A corporate governance mechanism in divided into two categories - an internal and an external governance mechanism. The internal governance mechanism includes the board of directors, board subcommittees and ownership structure. The external mechanism mainly focuses on market regulation.

The board of directors and board subcommittees ensure that companies are less influenced by corporate executives (Clarke, 2007). The board of directors will effectively monitor executives and replace inappropriate

executives when executives fail in their duty (Black, 2001; Smith, 2002). This will motivate executives to comply with the interests of shareholders, thereby reducing the conflict of interest between shareholders and executives. Board subcommittees will increase both the quality of corporate auditing and of corporate information disclosure, and ensure the independence of corporate compensation and nomination (Vafeas, 1999; Anderson and Bizjak, 2003; Vafeas, 2003; Gendron and Bédard, 2006). Under this circumstance, the executives will be monitored, compensated, and they may disclose more information to shareholders. Thus, companies may achieve a better performance and there may be less information asymmetry between companies and shareholders. Institutional shareholders are able to monitor executives and lower the influence from controlling shareholders on companies (Lin *et al.*, 2007; Elyasiani and Jia, 2010). Thus, institutional ownership may moderate the asymmetric information and improve firm performance.in companies.

3.2.1. Agency cost and corporate governance

3.2.1.1. Agency theory

Bagley (1999:162) states that:

In an agency relationship, one person- the agent - acts for or represents another person–the principal. The principal delegates a portion of his or her power to the agent, and the agent then manages the assigned task and exercises the discretion given to him or her by the principals. The agency relationship is created by an express or implied contract or by law.

In the agency relationship, the principals may not believe that the agent will act in the best interest of principals (Jensen and Meckling, 1976). Under this circumstance, the principals will establish appropriate incentive mechanisms to motivate agents to align their activities with the interests of principals, and the principals will pay more monitoring cost to limit the aberrant activities of agents (Jensen and Meckling, 1976).

One feature of contemporary listed companies is the separation of control and ownership. Public listed companies typically have a widespread ownership structure. Thus, it is impossible to call on all of the shareholders to determine firm operation. In this case, the alternative solution is to appoint a board of directors (the executive members of a board of directors) to manage the company. In a listed company, the relationship between shareholders and executives, such as chief executive officer (CEO) and other executive members of the board, is an agency relationship. 'Owners become principals when they contract with executives to manage their firms for them' (Davis *et al.*, 1997:22). Executives must therefore align their managerial activities with the interests of the shareholders, since they work as agents of the shareholders. Owners invest their capital into companies, and executives are responsible for managing their investment. Under the agency theory, however, executives may be not trusted and they may be identified as self-interested people who manage the firm in their own interests rather than that of the shareholders (Anderson *et al.*, 2007). If the interest of executives differs from that of owners, shareholders have to bear the cost of conflicts of interest. The conflicts of interest between shareholders and executives lead to the shareholders having little trust in the executives. Hence, shareholders have to pay the extra cost of monitoring managerial activities (Jensen and Meckling, 1976).

Besides the conflict of interest between the executives and the shareholders, there will be conflicts of interest between different shareholders (Shleifer and Vishny, 1997b). Hansmann *et al.* (2004) illustrate that if a company has a dispersed ownership structure, the myriad of small shareholders will become the principal and the larger shareholders will become the agent. Small shareholders lack the opportunities to be included in firm management. Therefore, they rely on large shareholders to monitor the management of the firm, since large shareholders, especially the majority (holding) shareholders, have the opportunity to influence firm management. However, the interests of large or majority shareholders may differ from that of the minority shareholders (Shleifer and Vishny, 1997b). Thus, the small shareholders will be easily expropriated by large shareholders, for small shareholders are excluded from the process of corporate managerial decision making.

The third type of corporate agency cost is the 'conflict between firm itself (including, particularly, its owners) and the other parties with whom the firm contracts, such as creditors, employees, and customers' (Hansmann and Kraakman, 2004:22). Hansmann and Kraakman (2004:22) suggest that a company, to some extent, can be seen as an agent that behaves opportunistically toward the various principals, 'by expropriating creditors, exploiting workers, or misleading consumers'.

Figure 3.2 agency theory
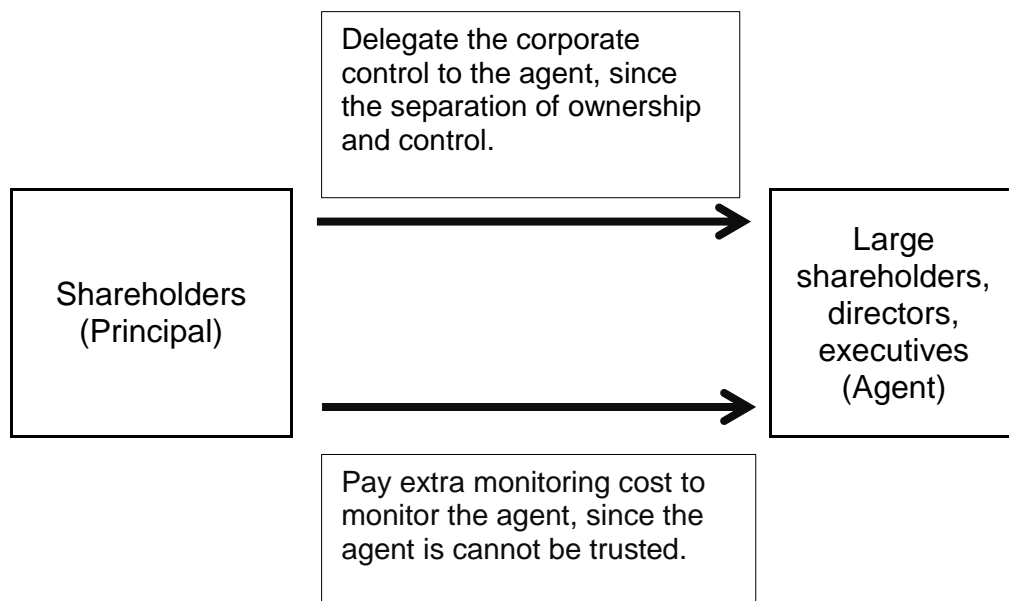
3.2.1.2. Stewardship theory

A core duty of the board of directors is to monitor the managerial activities of the highly-paid managerial teams, and to protect the corporate shareholders, but a series of corporate scandals indicates that boards sometimes fail to perform this duty (Anderson *et al.*, 2007). The financial scandals, which were revealed at the beginning of the 21st century (e.g. Enron, Parmalat), show that the independent directors of those companies failed to monitor the managerial activities of executives, and there was poor interaction between the board of directors and the managerial teams in those companies. There should be an alternative theory that promotes the independent directors to become strategic partners of the executives rather than monitoring them, and thus, increase the efficiency of the corporate governance mechanism to protect shareholders (Anderson *et al.*, 2007). If independent directors become strategic partners of executives, they will have opportunities to access the process of decision

making and receive the material or managerial information of the companies. In this way, the board of directors will become an informed supervisory body that has the ability to detect any managerial wrongdoings promptly. The traditional agency theory holds that corporate executives who act from self-interest and expropriate the rights of the shareholders, will be seen by the board as committing theft from their companies (Anderson *et al.*, 2007). The subjective judgement of the board can lead it to doubt all managerial activities of the executives, including reasonable managerial activities. Thus, corporate executives can be mistrusted by the board. Under these circumstances, there will be a serious conflict between the board and the corporate executives. The traditional agency theory impairs the cooperation efficiency between the board and the executives. The executives of the company have less incentive to cooperate with the board, since neither body trusts each other. Poor cooperation between the executives and the board can induce executives to limit the information supply and thereby reduce the supervision ability of the board. Anderson *et al.* (2007) state that stewardship theory is an alternative theory that can help to reduce the weaknesses of the traditional agency cost theory. Davis *et al.* (1997:21) state that stewardship theory is rooted in the theory of psychology and sociology and it 'defines situations is which managers are not motivated by individual goals, but rather are stewards whose motives are aligned with objectives of their principals'. Davis *et al.* (1997:24) point out that 'in stewardship theory, the model of man is based on a steward whose behaviour is ordered such that pro-organizational, collectivistic behaviours have higher utility than individualistic, self-serving behaviours'.

Contemporary listed companies are held by a diffuse group of owners who may have different goals. The varying goals of owners will cause companies to

have low operational efficiency. Thus, there should be some people to work as stewards in the companies to maximize company value, which is the main interest of all participants. Executives are responsible for the daily management of companies. Thus, they can be seen as the stewards of those companies, in which case their task is to maximize the value of their companies. Thus, although there may be conflicts of interest between the executives and the principals, the managerial behaviour would not depart from this purpose. Therefore, the interests of the executives will be aligned with that of the other corporate participants (Davis *et al.*, 1997). Stewardship theory causes corporate executives to realize the 'trade-off between personal needs and organizational objectives that by hard working toward organizational collective ends, personal needs are met' (Davis *et al.*, 1997:25). Stewardship theory motivates the pro-organizational behaviour of executives (Davis *et al.*, 1997). This will drive the executives to actively pursue the company's goals, since they are the company stewards and their interests will be similar to that of the companies. This will reduce the cost of monitoring, which is used to align executive activities.

Figure 3.3 stewardship theory
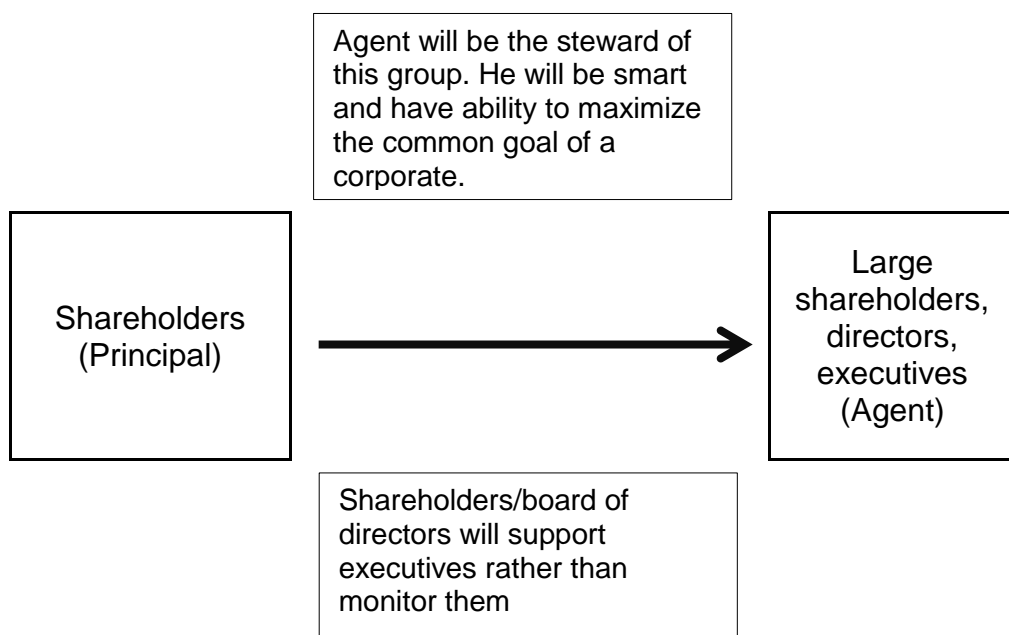
One difference between agency theory and stewardship theory is the effect of the leadership structure on firm performance. In agency theory, no person should work as the chairman and the CEO simultaneously in companies, since this combined leadership structure will lessen the monitoring effectiveness of the board of directors. According to agency theory, a combined leadership will exacerbate the conflicts of interest between shareholders and executives. By contrast, stewardship theory suggests that the role separation of chairman and CEO is not an essential practice to increase management effectiveness.

Some studies show that the role separation of CEO and chairman does not help companies achieve better performance in the market (Dalton *et al.*, 2007; Bennington, 2010; Dalton and Dalton, 2010). Thus, the regulatory requirement, which is the separation of CEO and Chairman, may not actually increase the managerial effectiveness of the board in companies as it is expected.

According to stewardship theory, to improve firm performance the chair of a board should increase his managerial skills. An effective board leader should have sufficient industry knowledge, good leadership skills that motivate communications within boardrooms, and time management ability to increase the effectiveness of board meetings. The CEO needs fluent industry knowledge, management experience, and good relationships with corporate insiders and outsiders. Thus, he will be a good candidate to chair the board in a company. If a combined leadership is good management structure in companies, there is no need to pressurise companies to adopt a separation structure.

However, stewardship theory ignores the effect of combining the roles on the asymmetric information in companies. A combined leadership structure means that the board of directors cannot effectively monitor corporate executives. In this case, executives have more opportunities to control the information released by companies. Thus, the combined leadership structure will exacerbate the problem of information asymmetry in companies (Gul and Leung, 2004; Xiao and Yuan, 2007a; Cheung *et al.*, 2010). Additionally, the combined leadership structure will mean a poorly-performing CEO cannot be easily replaced with a better one (Mak and Li, 2001; Goyal and Park, 2002). Thus, it is doubtful that the CEO duality can actually increase firm performance in long term.

Currently, the practice of corporate governance in Chinese companies is based on the agency theory. For instance, the code of corporate governance in the Chinese market requires companies to introduce independent directors on the board of directors, and figures from table 4-1 indicate that most Chinese companies adopt the separation of leadership structure. The purpose of the recent market reforms in the Chinese market is to increase the power of supervisory institutions in companies to monitor executives. This thesis intends to assess the practice of corporate governance in Chinese companies, rather than introduce another theory to Chinese companies. In light of this, agency theory has been adopted in the empirical studies.

3.2.1.3. Definition of corporate governance

The corporation is the most popular form of business organization in the contemporary business world (Jensen and Meckling, 1976; Aguilera, 2005). As a business organisation, a corporation has plenty of participants. An

organization needs governance mechanisms to resolve any conflicts of interests among its myriad participants (Daily *et al.*, 2003). Governance mechanisms restrict the phenomenon of power abuse by protecting the interests of the majority of the members of an organization (Licht, 2002). Corporate governance can be seen as a pack of contracts that represents an *ex ante* regime to constrain executive managerial discretion, if shareholders fail to monitor the actions of executives (Aguilera and Jackson, 2003; Talley and Johnsen, 2004; Nelson, 2005). Corporate governance aims to align the interests of different participants with the interests of the organization. If the interests of a company's participants cannot be unified, that company's managerial efficiency and performance will be diminished. Corporate governance is dynamic, for corporate participants regularly choose a corporate governance mechanism (Nelson, 2005). Additionally, the corporate governance mechanism should solve the conflicts of interest between shareholders and stakeholders. Thus, an optimal corporate governance mechanism needs to be accepted by the majority of the stakeholders.

Koh *et al.* (2007) characterize three essential purposes of corporate governance: these are safeguarding financial reporting, ensuring accountability and enhancing value. Safeguarding financial reporting ensures the quality of financial disclosure, thereby reducing the information asymmetry between companies and market investors. Ensuring accountability motivates corporate participants appropriately to fulfil their duty to their companies. A high quality of disclosure and an effective managerial team will help companies achieve a better performance in the market.

Investors rely on corporate disclosure to evaluate potential target companies, and monitor the companies they have invested in. Because of the separation of ownership and control, shareholders employ professional executives, such as the CEO and other executive members of the board, to manage their companies. Corporate shareholders rely on corporate disclosure to evaluate the performance of corporate executives. Improving managerial transparency is one purpose of the corporate governance mechanism (Ho and Wong, 2001; Chen *et al.*, 2007a). Low managerial transparency result in serious information asymmetry between companies and investors. As a result of this, investors are unable to make favourable investment decisions and monitor executives. However, full disclosure will not increase firm performance either, because it reveals a company's secrets to its rivals (Makadok, 2003; Welch and Rotberg, 2006).

Nelson (2005) shows that a greater quality of corporate governance positively affects firm performance. A good corporate governance mechanism will motivate corporate executives to better fulfil their duty. An optimal corporate governance mechanism imposes appropriate performance pressure on company managerial teams, to ensure that managerial activities are aligned with the interests of the corporate shareholders. If there is an appropriate alignment, executives of the companies will have more incentive to increase firm performance.

3.2.1.4. Board of directors

Board of directors

Fama(1980), Fama and Jensen (1983), and Zahra and Pearce II (1989) define the board of directors as a kind of market-induced institution that serves

as an ultimate decision maker and supervisor in a company. The board is a bridge between shareholders and managers, since it works as an intermediary between corporate shareholders and corporate managers, and is entrusted by the majority of corporate shareholders to monitor managerial activities (Stiles and Taylor, 2001). The separation of ownership and control makes shareholders reliant on the board of directors to monitor corporate executives. Thus, the board of directors plays an important role in the corporate governance mechanism (Aguilera, 2005; Guest, 2008), since a board represents the diverse shareholders in monitoring managerial activities. Black(2001:1) says that 'each member of the board of directors shall act: (1) in good faith, and (2) in a manner the director reasonably believes to be in the best interest of the corporation'.

Zahra and Pearce II (1989) define three roles of a board of directors; these are strategic, controlling, and serving. The board has a duty to make important decisions and to decide the strategic future direction of the firm, to represent shareholders in controlling the company, to be accountable to shareholders and to convey objective information to them (OECD, 1999). Members of a board are elected by corporate shareholders, thereby representing them in the management of the company. Bagley (1999:162) says that 'in agreeing to act on behalf of the principal, the agent becomes a fiduciary'. Thus, 'directors *act* as the fiduciary agents of the corporation – those designated to hold assets in trust or to exercise authority on behalf of someone else – and, as such, they have two main legal duties: care and loyalty' (Aguilera, 2005:44).

Duty of loyalty requires agents to 'act solely for the benefit of their principal in all matters directly connected with the agency undertaking'; and duty of care requires agents to 'avoid mistakes, whether through negligence, recklessness,

or intentional misconduct' (Bagley, 1999:162). If directors break their fiduciary duty, they will be held liable, since their activities will lead to a loss for the corporate shareholders.

Board subcommittees

Board subcommittees will increase the performance of a board of directors, for they can reduce the influence of executives on board decisions (Vafeas, 1999). Companies often establish an audit committee, remuneration committee, nomination committee, risk committee, and these subcommittees serve as assistants to the board (Chhaochharia and Grinstein, 2007a). In contemporary listed companies, the compensation subcommittee is established to determine some specific managerial decisions, such as the compensation package for independent directors and executives (Anderson and Bizjak, 2003).

In practice, the nomination of executives and independent directors to the listed companies is controlled by the board (Vafeas, 1999). In the case of a dispersed ownership structure, the collective nomination decision of all shareholders is costly. Therefore, the board undertakes the duty of nominating and appointing corporate executives and independent directors. To increase the quality of nominations, a nomination committee is created to help the board nominate appropriate people to the executive positions. A benefit of using a nominating committee is that the process of corporate nomination is more likely to be independent from the current managerial team (Vafeas, 1999). However, if corporate insiders control the process of corporate nomination, they could nominate and appoint people affiliated to them to serve as members of the corporate managerial team.

An optimal compensation package will motivate corporate executives to align managerial activities with the interests of shareholders. In the listed companies, the board delegates the function of designing the compensation contract to the compensation committee (Anderson and Bizjak, 2003). The core function of a compensation committee is to design a compensation package and act as a consultant to the board in deciding the payment of executives and independent directors. Through using a compensation committee, corporate compensation will be less influenced by corporate insiders. Thus, the compensation committee plays an important role in determining compensation packages (Anderson and Bizjak, 2003). After the financial scandals at the beginning of the new century, market regulatory agents considered the compensation committee as a core decision-making body, responsible for setting and monitoring compensation payment of executive directors and independent directors (Vafeas, 2003).

Gendron and Bédard (2006) argue that the audit committee is an important part of corporate governance, since it has a duty to constrain the opportunistic activities of corporate executives. Core functions of the audit committee include:

1) To review the information of managerial activities.

2) To call regular meetings with internal and external auditors to review the firm's financial statement.

3) To review the process of internal and external auditing.

4) To review the internal controls, which question management, internal and external auditors and evaluate the performance of these institutions (Bosch, 1995; Klein, 1998; Klein, 2002a; Klein, 2002b;

Thompson, 2003; Moeller, 2004; Davidson *et al.*, 2005; Conor and Jenny, 2007).

Independent directors

To increase the performance and efficiency of a board and its subcommittees, the majority of its members should be independent directors (Vafeas, 1999; Vafeas, 2000; Vafeas, 2003). After the series of financial scandals in the early 2000s, board independence and the proportion of independent directors on a board is attracting more attention. If a director is defined as an independent director, this director cannot be a member of the managerial team and must be independent from the profit-seeking shareholders (Clarke, 2007). Clarke (2007:84) defines a typical independent director as 'one who has no need or inclination to stay in the good graces of management, and who will be able to speak out, inside and outside the boardroom, in the face of management's misdeeds in order to protect the interest of shareholders.' Roberts *et al.* (2005:13-15) illustrate three key principles of independent directors, which in a collaborative and effective board are '1) engaged but non-executive, 2) challenging but supportive, 3) independent but involved'.

Independent directors can improve the quality of corporate governance in different ways. Firstly, independent directors have a duty to monitor related party transactions, if they are driven by the interest of large shareholders (Clarke, 2007). Large shareholders may want to give their affiliated companies preferential conditions, in any dealings between them and the company. This phenomenon expropriates the right of the small shareholders, since it is less beneficial to small shareholders. Independent directors can protect the right of the small shareholders, for they are independent from large shareholders.

Independent directors protect the right of minority shareholders 'for even one isolated director can provide a degree of protection to minority shareholders by publicizing, or threatening to publicize, majority shareholder abuse of which he becomes aware' (Clarke, 2007:80). Secondly, independent directors serve as a 'brains trust' or consultants in a company (Clarke, 2007). Independent directors are employed from the external market; thus they can bring fresh managerial ideas to companies. Thirdly, independent directors solve the problem of executive directors dominating the board (Clarke, 2007). Independent directors are independent from the company's managerial team; hence, if the majority of board members are independent directors, the board of directors will have more incentive to monitor the corporate executives. Finally, independent directors serve as the implementers of external regulation (Clarke, 2007). Clarke (2007:82) states that independent directors can implement external regulation through

> …exercising their voting power on the board to induce the company to act in compliance with the standards, through using their access to information to alert the authorities to non-compliance, or through using their access to information to certify compliance.

Independent directors or external directors have a fiduciary duty to corporate shareholders, for they represent the interests of small shareholders on the board. Black (2001) characterizes the four core fiduciary duties of independent directors as loyalty, care, disclosure, and special care when the company is a takeover target. The most important type of fiduciary duty is the duty of loyalty (Black, 2001; Smith, 2002).

The duty of loyalty requires that independent directors act in the interest of the company, in other words, independent directors should be loyal to the interests of the majority of the company's shareholders. The role of independent directors is to review and approve self-dealing transactions, and thus, ensure that the transactions are entirely fair to companies (Black, 2001). The term self-dealing transaction has two tiers of meaning (Black, 2001). Firstly, the self-dealing transactions are directly beneficial to corporate insiders, such as insider trading, and impose a relative cost on corporate shareholders. Secondly, the self-dealing transaction can be a transaction that transfers value to one company from another, such as the related party transaction between two companies. If independent directors are only nominally independent from corporate insiders and the large shareholders, they could easily approve self-interest transactions while having fewer incentives to assess and monitor them. Under this circumstance, independent directors would be breaking the duty of loyalty and failing to protect the right of small shareholders.

The second fiduciary duty is the duty of care, which requires independent directors to 'pay attention and to try to make good decisions' (Black, 2001:14). Independent directors should make the 'best' decision that maximizes the wealth of corporate shareholders. Unlike the duty of loyalty, the duty of care cannot be judged effectively. Firstly, the majority of investors lack relevant business experience and they are excluded from the business transactions (Black, 2001). They cannot make an unbiased evaluation of the decisions of independent directors. Secondly, an unfavourable share price may not be caused by bad managerial decisions (Black, 2001). There is no causal relationship between good managerial decisions and favourable stock price, since the stock price is not influenced by a single factor. Therefore, a poor

share price cannot be seen as a result of the quality of managerial decisions. Thirdly, a risky decision will generate two opposite results (Black, 2001). A risky decision generates uncertain results, which can be bad or good. Thus, although a decision is considered carefully, it still may result in poor firm performance. A heavy legal liability for failing in its duty of care will disincline the board from any risky projects. Duty of care should motivate the board of directors to support the optimal risky projects (Black, 2001).

The third fiduciary duty is the duty of disclosure, which requires independent directors to reduce the information asymmetry of companies (Black 2001). Independent directors must require executives to disclose more specific information about the company to the shareholders. More corporate disclosure will reveal more information to the investors and help shareholders to accurately assess the company.

The last fiduciary duty is the duty of special care when the company is a takeover target (Black, 2001). During the takeover, there will be a conflict of interest between directors and shareholders, since directors will face the risk that they will be replaced by alternative directors. Additionally, directors are more likely to select the bidder in line with their own interest. Thus, directors attempt to influence the process of takeover to extend their own interest. The duty of special care can be seen as an expansion of the duty of loyalty, since it requires the directors, whether internal or external, to align their activities with the interests of shareholders.

3.2.1.5. Developments in corporate governance after scandals

Brown and Caylor (2006) point out that the financial scandals (e.g. Enron and Parmalat) that occurred at the beginning of the 21st century reveal that the financial markets needed to reform the corporate governance mechanism. For instance, independent directors cannot effectively monitor corporate executives, and the provision of non-auditing services by the audit companies causes shareholders to face moral hazard.

Thus, global financial markets have begun to reform their corporate governance mechanisms. For instance, in 2002, the US congress passed the Sarbanes-Oxley Act (SOX) after the case of Enron and WorldCom; SOX increases the requirements of internal audit, to ensure that potential managerial wrongdoings can be detected in advance. Additionally, the SOX rules pay more attention to the role of independent directors.

Another part of corporate governance reform is auditing reform. Those serious corporation scandals not only reveal the failure of the board of directors, but also highlight the poor auditing quality and poor independence of the audit committee in those companies (Ferrarini and Giudici, 2005; Romano, 2005). Ferrarini and Giudici (2005) state that the external audit companies of those companies not only provided professional auditing services, but also provided non-auditing services. Romano (2005) points out that the provision of non-auditing services will compromise the quality of the auditing report. To attract a company to purchase their auditing services, the audit companies have to sacrifice their auditing independence (Ferrarini and Giudici, 2005). Companies prefer to build a long-term business relationship with their auditing companies, which then have a low auditing independence, because the executives have more opportunities to manipulate the company's financial information. Under

these circumstances, auditing companies have less incentive to improve their auditing quality, and this exacerbates the information asymmetry.

3.2.2. Information and the stock market

3.2.2.1. Efficient Market Hypothesis

The term efficient market hypothesis (EMH) means that the stock prices 'instantaneously and fully reflect all relevant available information' (Blake, 2000:309). If the securities market is an efficient market, the stock price will be equal to its true value, or the difference between market price and true value will be small. Investors need the financial market to be efficient, since this will help them to effectively evaluate the companies.

To explain the EMH, Fama (1965; 1970) provides three information sets: 1) weak-form, 2) semi-strong-form, and 3) strong-form. The weak-form information set only contains the historical prices of stock. The semi-strong-form information set includes all public information. The strong information set contains all available information, even private inside information. Under the three information set forms, the EMH can make different predictions. The weak-form EMH implies that the stock price will fully reflect the historical performance of the stock, but investors are unable to predict the future with historical information (Blake, 2000). The semi-strong-form EMH means that the stock price will reflect all the public information, and that new information will be incorporated into the stock price rapidly (Blake, 2000). The strong-form EMH implies that the stock price will fully reflect all information, and that no investor can have an advantage over any other by getting an exclusive return (Blake, 2000).

Investors need the securities market to be efficient, but in fact there is evidence against the EMH. The double moving average rule will be evidence against the weak-form EMH. Investors can set the short moving average and long moving average with historical data. If the short moving average rises (falls) over the long moving average, it will be a signal to purchase (sell) shares. In this case, the historical stock price will help investors to make their future investment decisions. Brock *et al.* (2000) show this rule works with their study of the US securities market. The calendar effect will be the evidence to go against the semi-strong-form EMH. The calendar effect indicates that there will be significant excess return of stock around the specific times of the 'day of the week, or month of the year' (Blake, 2000:398-399). Ariel (2005) found that the return prior to a national holiday in the US will be higher than that of the average daily return. Both legal and illegal insider trading will be evidence against the strong form EMH (Blake, 2000). Registered insiders and other illegal insiders have the ability to access non-public material information and this will help them to get excess returns from the market. Lorie and Niederhoffer (2010) and Jaffe (2004) state that the information advantages of insiders give them the ability to predict the price movement and to get an excess return in the market.

These empirical studies indicate that even in the US market, which is a typical developed market, the strong-form EMH does not hold. Thus, there will be opportunities for the investors who have information advantage to earn excess returns from the market.

3.2.2.2. Information leakage and insider trading

Information leakage

Information leakage is the phenomenon that the content of important corporate announcements, such as M&A and earnings announcement, is known by the market prior to the announcement date.

Information leakage includes two types of business practice: 'trading based on non-public material information and private communication between analysts and firms' (Mac, 2002:3). The known financial scandals show that some market makers changed their quoting behaviour before the information disclosure, since they received recommendations from market analysts, who are close to the trading department of a company (Heidle and Li, 2004). With information leakage, the stock price will be increased (decreased) before the good (bad) news. For instance in the US market, stock price will be adjusted before the disclosure date (Keim and Madhavan, 1996). Brunnermeier (2005:417) proposed three features of early-informed agents' trading strategy:

1) he trades based on his private information twice, once before the public announcement and a second time after it

2) he builds up a position which he intends to unwind partially after the public announcement because he predicts that the market will overreact to the news

3) his trading prior to the announcement makes it more difficult for other market participants to learn from past price movements.

Information leakage damages market fairness and integrity for the majority of investors do not receive the material information until companies publicly disclose it. Executives control the corporate information supply, time the disclosure, and choose the target user of disclosure (Lakhal, 2008). The market

regulatory rules prohibit executives from trading shares based on their information advantage, and executives have to disclose information to moderate the asymmetric information among company's participants. As a consequence of this, executives may leak information to their affiliated corporate participants. However, the myriad of other corporate participants lose the opportunity to have equal access to corporate information. Information leakage creates an information advantage for informed participants to expropriate the interest of other uninformed participants (Chiyachantana *et al.*, 2004). The information advantage is based on the leaked information from corporate executives. Thus, leaking information to a small group of people may also exacerbate the conflict of interest between executives and corporate participants who do not receive the information. Brunnermeier (2005) indicates that although information leakage may increase efficiency of the pricing process in the short term, it makes the pricing process less informative in the long term. Thus, regulatory agencies of financial markets regulate the phenomenon of information leakage. For instance, the SEC promulgated Regulation Fair Disclose (FD) on 23 October, 2000 to reduce the selective disclosure of listed companies.

Insider trading

The Securities Exchange Commission (SEC) classifies insider trading in two categories: legal insider trading and illegal insider trading. Legal insider trading is when insiders trade their company's stock, and report such transactions to the SEC (SEC, 2001).

Illegal insider trading refers generally to buying or selling a security, in breach of a fiduciary duty or other relationship of trust and confidence, while in possession of material, non-public information

about the security. Insider trading violations may also include 'tipping' such information, securities trading by the person 'tipped', and securities trading by those who misappropriate such information (SEC, 2001).

Insider trading breaks integrity and fairness in the securities markets, since it undermines the rights of other investors. Thus, the majority of financial markets act to control insider trading activities. However, illegal insider trading is hard to detect, since it is hard to track the pattern of trading (Keown and Pinkerton, 1981). The predicate of insider trading is inside information. If this inside information is leaked to the market, investors can use it in their investment decisions. Keown and Pinkerton (1981) identify a possible pattern of information leakage. Insiders will leak the information to their friends and the latter spread this information further. To the market regulatory agency, it is easy to regulate the trading activities of registered insiders. However, it is much harder to examine the trading activities of the tippees of insiders. Thus, to reduce insider trading activities, one possible solution is to reduce information leakage.

3.3. Empirical evidence

3.3.1. Corporate governance mechanism and firm performance

Cremers and Nair (2003; 2005) classify the corporate governance mechanism in two categories, internal and external. A typical external governance mechanism contains the market of control (e.g. takeover) and the

market legislation system (Easterbrook and Fiscal, 1991; Shleifer and Vishny, 1997a). Ownership structure and the board of directors are the important pillars of a typical internal governance mechanism (Cremers and Nair, 2003; Cremers and Nair, 2005).

An unsophisticated corporate governance mechanism fails to reduce conflicts of interest among corporate participants, thereby exacerbating the agency costs of companies. For instance, a strong managerial team might align its managerial activities with its own interests (Florackis and Ozkan, 2009). In these circumstances, there is a serious conflict of interest between the managerial team and the shareholders.

A proper corporate governance mechanism will effectively reduce the conflicts of interest in a company. Klapper and Love (2004) state that an optimal corporate governance mechanism will bring higher operation performance and higher firm performance to a company. In the emerging markets, a better corporate governance mechanism will maximise the wealth of investors (Morey *et al.*, 2009). Additionally, a better corporate governance mechanism increases the confidence of investors, for their investment will be guaranteed by the internal safeguard. A better corporate governance mechanism reduces information asymmetry, thereby leading to greater equity liquidity (Chen *et al.*, 2007a).

An effective corporate governance mechanism is important to expanding new firms, since these firms need continuous financial support from the capital market. Thus, developing companies aim to adopt a good corporate governance mechanism to attract investment from the capital market (Klapper and Love, 2004). Firms which have a higher proportion of intangible assets,

also aim to employ a good governance mechanism. Intangible assets lead investors to doubt the safety of their investment, for intangible assets cannot be physically measured. Thus, investors need an extra protection to ensure the safety of their investment. A complex corporate governance mechanism can be seen as a commitment that companies will take all necessary action to ensure the investment will be appropriately deployed (Klapper and Love, 2004).

3.3.1.1. Board of directors and firm performance

The board of directors is an important pillar of the internal governance mechanism; its characteristics or composition will determine its effectiveness. Lakhal (2003) summarises three most important characteristics of a board: board size, board composition, and board leadership. They will affect the performance and quality of the corporate governance mechanism of a company. An optimal board will bring better firm performance to the corporate shareholders (Ragothaman and Gollakota, 2009).

Firstly, firm performance will be influenced by the board independence. Leftwich *et al.* (1981) and Short and Keasey (1999) state that a board which is dominated by inside directors will be considered an ineffective board. Boards of directors should represent the wide range of corporate shareholders, especially the small shareholders, in the management of companies and in monitoring the activities of the corporate executives. Investors will consider the board as a supervisory board, if the board is solely composed of independent directors, so greater board independence is a significant signal of good corporate governance (Black, 2001). Board independence will reduce the incidence of self-interested activities by insiders (Black, 2001). The duty of supervision undertaken by the independent director includes: 1) monitoring the incidence of

self-dealing activities of inside executives, and 2) taking necessary action to correct any management wrongdoing immediately (Bhagat and Black, 2002). Greater board independence leads to the board being better able to replace any executives who breach the accepted managerial code of practice (Fich and Shivdasani, 2006). Lakhal (2003) argues that there will be more collusion with the corporate executives if the majority of the board members are inside directors. Under this circumstance, small shareholders and external shareholders will be easily expropriated by the managerial team, since they cannot rely on the board of directors to monitor it. Therefore, a board that is dominated by internal directors will exacerbate conflicts of interest between shareholders and executives.

In companies, a poorly-performing managerial team will be replaced by an alternative managerial team. The relationship between the incidence of disciplinary turnover among executives and board independence is positive (Hermalin, 1988). Hemalin and Weisbach (1998:112) point out that 'CEO turnover is negatively related to performance and this relation is stronger when the board is more independent'. Stock prices react positively to the appointment of new independent or external directors (Rosenstein and Wyatt, 1990). Appointment of an extra independent director signals that the company will provide better protection, and thus increases the confidence of shareholders. Dahya *et al.* (2008) state that independent directors, to some extent, are the strong protectors who provide a shield for the outside shareholders. Thus, greater board independence is a factor in improving company performance (Dahya *et al.*, 2008; O'Connel and Cramer, 2010).

However, other empirical results indicate that greater board independence does not actually increase firm performance. Mura (2006) states that board independence does not affect firm performance. Yermack (1996), Agrawal and Knoeber(1996; 1998), Bhagat and Black (2002) demonstrate that firm performance is negatively associated with board independence. Moreover, Fernandes (2005:17) argues that 'companies with zero non-executive board members actually have a strong alignment between managerial and shareholder interests'. Independent directors are independent from the company's managerial team, and thus they are excluded from the daily management of the companies. Greater board independence can leave the board with insufficient real information, thereby generating poor managerial decisions.

Secondly, a board of directors' influence on firm performance is affected by board size. Jensen (1993) states that board size is an important factor in evaluating the performance of board of directors. Yermack (1996), Hermalin and Weisbach (2003), and Guest (2009) point out that a smaller board is associated with better firm performance. A small board will spend less time informing its members. The shorter communication distance between members will help increase the efficiency of the board's decision making. An effective board will provide a rapid managerial decision to a company. O'Connel and Cramer (2010) argue that there is a negative relationship between firm performance and the size of the board of directors in companies. However, Dalton *et al.* (1999) argue that board size positively affects firm performance. Although a large board may have lower efficiency of communication, a larger board can call on the experience of more directors to generate relatively favourable managerial decisions. Additionally, a complex company also need a

large board. Thus, a small board cannot increase firm performance in such companies (Coles *et al.*, 2008; Larmou and Vafeas, 2010).

Finally, the performance of a company will be determined by the leadership structure of its board of directors. Fama and Jensen (1983) argue that the conflict of interest between corporate insiders and the corporate shareholders will be exacerbated if one person simultaneously works as CEO and chairman. The dual-role leadership structure means that the board of directors and the managerial team are controlled by a single person (Fama and Jensen, 1983). Under this circumstance, the board of directors will have less incentive to monitor the managerial activities of the executives, thereby motivating corporate executives to manage companies in their own interests. Thus, the dual-role leadership exacerbates the potential for conflict of interest between shareholders and executives. To reduce this conflict of interest the CEO role should be separated from that of chairman; this will ensure that the managerial team will be effectively monitored by the board. The CEO-Chair separation will help companies increase the operation performance (Bhagat and Bolton, 2008). However, Schmid and Zimmermann (2008) state that the role separation of CEO and chairman does not really affect the improvement of firm performance, since firm performance will be reduced by the cost of role separation (Brickley *et al.*, 1997). Schmid and Zimmermann (2008:185-186) characterise some potential costs of role separation:

1) Who monitors the monitor? New agency costs may arise with the delegation of decisions to the independent chairman who is given enormous power, which he can use to extract rents from the firm.

These costs, however, can be reduced when the chairman holds equity in the firm.

2) There are information costs in transferring critical information between the CEO and the chairman. As a result of his function, the CEO presumably possesses considerable specialized knowledge, which is also valuable to the chairman. Hence, a separation of the two functions requires a costly and possibly incomplete transfer of information between the CEO and chairman.

3) Although a combination of the two functions creates a clear-cut leadership and potentially a more rapid implementation of decisions, separating the CEO and chairman functions might create the potential for rivalry between the two title holders. At the same time, a separation of the functions can make it more difficult to assign blame for bad company performance.

4) In firms with combined functions, the CEO/chairman first passes the CEO title to his successor while retaining the chairman title during a probationary period. Doing so allows the board to monitor the new CEO on the job, and for the outgoing CEO/chairman to provide assistance and pass on important information to the new CEO. After the probationary period, the new CEO is often assigned the additional title of chairman, and the old chairman resigns from the board. The prospect of being promoted to chairman can provide important incentives to new CEOs, which are lost if a firm maintains an independent chairman.

Faleye (2007) points out that firms have incentives to consider an alternative leadership structure, and the separation of CEO and chairman will be counterproductive to some companies.

3.3.1.2. Subcommittees and firm performance

Audit committees work as internal reviewers in the listed companies (Klein, 1998; Klein, 2002b; Klein, 2002a). An independent audit committee works as an independent reviewer of corporate financial disclosures and the managerial activities of corporate executives. Low independence of an audit committee will impair the efficiency and performance of that audit committee and therefore affect the quality of corporate disclosure and corporate auditing. A high quality of corporate disclosure will increase the confidence of market investors, since it reduces information asymmetry and market uncertainty. Effective corporate internal auditing will detect managerial wrongdoing and deter the executives from involving themselves in self-interested activity. Therefore, using an independent audit committee will enhance firm performance (Koh *et al.*, 2007).

Menon and Williams (1994) and Anderson and Bizjak (2003) find that the presence of executive directors on a board's compensation committee decreases its efficiency. A more independent compensation committee is more likely to impose a performance-sensitive remuneration package on corporate executives (Anderson and Bizjak, 2003). There is a positive relationship between the executive stock options and firm performance if the company has a high quality compensation committee (Sun *et al.*, 2009).

An independent nomination committee is an important factor in improving board independence (Ruigrok *et al.*, 2006). The quality of the board of directors will determine how the corporate governance mechanism influences the

performance of a company. The independence of the nomination committee is predicated on an effective board, since it ensures the nomination process is less influenced by corporate insiders. If a nomination committee is dominated by corporate insiders, the insiders will have more opportunity to allow affiliated people to serve as members of the board of directors. Hence, the board will have less incentive to monitor the managerial activities of the executives (Brown and Caylor, 2004; Brown and Caylor, 2006).

3.3.1.3. Ownership structure and firm performance

Besides the board of directors, another important pillar of the corporate governance mechanism is the ownership structure, since shareholders are the owners of listed companies. Because of the dispersed ownership structure, the rights of each shareholder will depend on the size of their holding. Therefore, the composition of corporate ownership will affect firm performance.

Firms prefer a dispersed ownership structure if there is an active stock market, and the country's supervisory system encourages takeover as a method of acquiring company control (Bolton and von Thadden, 1998). Admati *et al.*(1994) state that widespread ownership brings greater market liquidity and better risk-diversification to companies. Appropriate ownership concentration positively affects the performance of a company, since it lowers the problem of free-riders, which is caused by a dispersed ownership structure. Individual and small shareholders lack the ability and knowledge to monitor the corporate executives (Shleifer and Vishny, 1986). Himmerlberg *et al.* (1999), Hansmann and Kraakman (2004) find that a dispersed ownership structure will exacerbate the conflict of interest between the executives and the shareholders, since the owners lack the ability to monitor the executives. Additionally, it is costly to call

all of the shareholders to manage listed companies (Hart, 1995). This means companies have less incentive to invite small shareholders to be part of the process of firm management. Thus, small shareholders have to rely on the large shareholders to monitor the corporate executives. Ownership concentration leads to large shareholders having opportunities to monitor the managerial team (Admati *et al.*, 1994). Effective block-holders have more incentive to monitor corporate management and influence managerial decision making to improve the firm performance (Gorton and Kahl, 2008; Elyasiani and Jia, 2010).

As a large shareholder in a company, the attitude of the founding family will influence firm performance. Andres (2008) states that an active founding family will drive the firm to get a better performance in the market, whereas a passive founding family cannot provide this benefit. Additionally, the effect of family ownership on firm performance also depends on the capital structure of the company (King and Santor, 2008). The ownership structure also affects the transaction cost of a company's share. There is a negative relationship between the bid-ask spread and the institutional ownership (Kini *et al.,* 1995). A wide bid-ask spread will decrease the firm's liquidity through the high transaction cost. The high transaction cost prevents companies getting extra investment via the capital market, thereby decreasing performance.

However, if the ownership of a company is highly concentrated in dominant or majority (holding) shareholders, ownership concentration will have a negative effect on firm performance. Large shareholders are able to expropriate the right of small shareholders through abusing the company's assets (Dahya *et al.*, 2008). Large shareholders have opportunities to abuse the company's assets while leaving the cost to small shareholders. If majority

(holding) shareholders enhance their ownership through cross-shareholding or they appoint their affiliated people to serve as powerful employees, the ownership of majority (holding) shareholders will negatively affect firm performance (Yeh, 2005). Through related party transactions, dominant shareholders seriously expropriate the right of small shareholders (Dahya *et al.*, 2008). A related party transaction is a transaction when a dominant shareholder arranges a deal between two firms, which are related to this dominant shareholder. In such a transaction, the company, which is controlled by a dominant shareholder, will provide advantaged terms to the other company, which is related to the dominant shareholder (Dahya *et al.*, 2008). Thus, the related party transaction hurts the right of the small shareholder, since they do not share the benefit of a related party transaction. Under some special circumstances, the majority (holding) shareholder can improve the quality of corporate governance. For instance, when firms issue new shares in the market, dominant shareholders will prefer to appoint new additional independent directors to the board of directors (Dahya *et al.*, 2008). Through the appointment of new independent directors, majority (holding) shareholders seek to increase the confidence of investors and attract more investment from them.

To ensure that managerial activities are aligned with the interests of corporate shareholders, corporate executives need to be awarded an effective compensation package. An effective compensation mechanism will attract an appropriate outside human resource, and will persuade the current corporate managerial team to increase the firm's performance (Anderson and Bizjak, 2003). The purpose of managerial ownership is to link the wealth of managerial executives with the improvement of firm performance. In this way increased firm

performance will increase the wealth of corporate executives. Through managerial ownership, corporate executives will be stimulated to improve firm performance. Thus managerial ownership is positively related to the target returns of companies (Bauguess *et al.*, 2009). Inappropriate managerial ownership, however, will have a harmful effect on firm performance. A large managerial ownership endows managerial executives with the power to reduce the effective supervision of the internal governance mechanism. Well-entrenched managerial executives will have more inclination to manage the company in their own interests rather than in the interests of corporate shareholders. Therefore, inappropriate managerial ownership will impair firm performance. There is an inverted-U or hump-shaped relationship between Tobin's-Q and managerial ownership (Loderer and Martin, 1997; Coles *et al.*, 2007).

3.3.1.4. Endogeneity between firm performance and board of directors

The corporate governance mechanism is a material factor in the improvement of firm performance. At the same time, company performance will determine the choice of a corporate governance mechanism, such as the composition of the board. Thus, the corporate governance mechanism and firm performance simultaneously influence each other.

Hermalin and Weisbech (1998), Bebchuk *et al.* (2002), and Ryan Jr and Wiggins Iii (2004) point out that board independence is a result of the bargaining process between the corporate executives and the board of directors, and the turnover of executives will be higher if the majority of the board is independent. During this process, the bargaining power depends on the

previous performance of the company (Wintoki *et al.*, 2008). Board independence increases the supervision deterrence of internal governance, and thus motivates the corporate executives to improve firm performance (Rosenstein and Wyatt, 1990; Dahya *et al.*, 2008). If the executives fail to increase firm performance, they will be replaced by alternative executives. Conversely, if the executives increase firm performance, they will ask for more managerial discretion from the board. Black (2001), Wintoki *et al.* (2008) state that within any particular period, board independence will be negatively related to previous firm performance, since the executives will be given more managerial discretion, thereby influencing the choice of the company's corporate governance mechanism.

However, in the Chinese securities market, the endogeneity between company performance and independent directors does not exist. The ownership structure of Chinese listed companies makes the problem of insider control serious, since large shareholders, especially the majority (holding) shareholder, have substantial influence in the Chinese listed companies (Li *et al.*, 2005; Kang *et al.*, 2008). Independent directors will be influenced by the interest of large shareholders (Kang *et al.*, 2008; Wei and Geng, 2008). Under this circumstance board independence will have no significant effect on firm performance of Chinese listed companies (Wei, 2000). Thus, if they perform poorly in the market companies will have fewer reasons to increase the board independence to improve firm performance,

3.3.2. Corporate governance mechanism and corporate transparency

The separation of ownership and control in contemporary listed companies leads to conflicts of interest among their participants. Shareholders give managerial discretion to corporate insiders. However, not all corporate insiders are loyal to the shareholders; some of them are unscrupulous and intend to expropriate the rights of the outsiders. Thus corporate governance is attracting more and more attention, since shareholders have to rely on corporate governance mechanisms to monitor listed companies.

Aguilera (2005) states that corporate governance, which includes internal and external mechanisms, will ensure the operational efficiency of a company to maximise the wealth of corporate participants and provide good entrenchment to them. Jiraporn and Davidson (2009) argue that market regulation will encourage shareholders to actively protect their rights. In general, the external corporate governance mechanism depends on the quality of public legislation and other market mechanisms; internal mechanisms are mainly determined by the board of directors and the ownership structure.

3.3.2.1. Board of directors

The board of directors is an important component of the internal corporate governance system, since it takes on the duty of monitoring the corporate executives to protect the corporate shareholders. The separation of ownership and control, and a dispersed ownership structure make collective supervision by all corporate shareholders costly. The board therefore represents the majority of corporate shareholders in monitoring the companies with the permission of those shareholders, who delegate managerial and supervisory power to the board of directors (Lim *et al.*, 2007; Dahya *et al.*, 2008). Supervision of managerial activities is one of the most important duties of the board.

Supervision is used as a comprehensive label to cover all value–enhancing activities. It 'comprises intervention in a company's affairs as well as information acquisition and is used synonymously with intervention and shareholder activism' (Maug, 1998:66).

Directors have a fiduciary duty to corporate shareholders, thus they are supposed to protect their interests. However, in practice, directors are often criticised by the shareholders since the highly-paid corporate executives have opportunities to expropriate interest from the corporate shareholders (Anderson *et al.*, 2007). If the board is dominated by executive members, such as the CEO, it will have fewer intentions to monitor the managerial activities of the corporate executives. Thus, corporate governance mechanisms emphasise the need for independent directors as they will bring greater transparency, accountability and efficiency to corporate governance (Aguilera, 2005; Lin *et al.*, 2007).

The high accuracy and transparency of corporate disclosure is one objective of a good corporate governance mechanism, for it facilitates corporate shareholders to protect their rights (OECD, 1999; OECD, 2004). However, a corporate managerial team can have a strong need to manipulate the content of financial disclosure in order to reduce company transparency. Black (2001), Ho and Wong (2001), Klein (2002a), and Davidson *et al.* (2005) state that board independence is negatively related to the incidence of earning management. If a board is solely composed of executive directors, companies will have less incentive to increase the quality of corporate disclosure. If corporate executives have the opportunity to manipulate the content of financial disclosure, corporate shareholders cannot effectively detect illegal activity in the corporate managerial

team. Black (2001) indicates that independent directors have a duty of loyalty and a duty of disclosure to corporate shareholders. Independent directors are independent from the corporate managerial team, and therefore will be less influenced by the corporate insiders. If the majority of the board is independent, the board will be more likely to demand that corporate insiders increase the transparency and accuracy of corporate financial disclosure (Forker, 1992; Nowak and McCabe, 2003; Ahmed *et al.*, 2006; Kanagaretnam *et al.*, 2007; Bingfa *et al.*, 2011). Greater independence in the board constrains the phenomenon of earnings management, and reveals true financial information about the company to the market (Cornett *et al.*, 2009). A reduction in earnings management increases the quality of corporate information disclosure which will in turn reduce the information asymmetry (Marquardt and Wiedman, 2004). Generally, greater board independence will lead insiders to disclose more information and reduce information asymmetry, and thus help shareholders effectively monitor their companies.

The effectiveness of a board will be decreased by low board independence, large size and dual-role leadership structure (Ryan Jr and Wiggins Iii, 2004). A large board has a low efficiency of internal communication, since members have to spend more time understanding an event and determining a suitable solution. A large board cannot verify corporate information rapidly, thus the large size of a board can decrease the quality of corporate disclosure. A small board will have a high verification efficiency of the content of information, thereby increasing the information value of a corporate announcement (Vafeas, 2000).

The phenomenon that one person can simultaneously be the chairman and CEO in a company will exacerbate information asymmetry, since this gives a corporate managerial team more opportunity to manipulate corporate information disclosure (Ho and Wong, 2001). The CEO as the leader of the corporate managerial team controls the daily management of company. The chairman is the leader of board which monitors the managerial activities of corporate managerial team, in order to protect the rights of the shareholders. If one person simultaneously serves as the CEO and the chairman in a company, this person will be given substantial managerial power. For instance, this person has the power to undermine the internal governance mechanism. With this dual-role leadership structure, the corporate managerial team will have more managerial discretion because its leader is also the leader of the board of directors. Therefore, the board will have less incentive to monitor the activities of the corporate managerial team and this will increase information asymmetry between the company and its shareholders (Bingfa *et al.*, 2011).

3.3.2.2. Board subcommittees

Board subcommittees work as assistants to the board to deal with certain managerial issues. Klein (1998) points out that the independent status of these subcommittees is very important, for this will determine how they affect the internal governance of a company. The majority of western companies have established audit, compensation (remuneration) and nomination committees. Vafeas (1999, 2003) argues that if the executive directors serve as members of these board subcommittees, they will be less likely to reduce the influence of company executives.

An effective audit committee is the guarantee of corporate financial accuracy and integrity and therefore increases corporate transparency; this reduces information asymmetry and provides better protection to the corporate shareholders (Cotter and Silvester, 2003; Koh *et al.*, 2007). A primary function of the audit committee is to review the content of any disclosure to ensure the quality of corporate financial disclosure. Additionally, the audit committee has a duty to ensure the quality of internal and external auditing in a company. Finally, the audit committee has a duty to review and evaluate the performance of the corporate managerial team. These duties require the audit committee to work as independently as possible in a company. Thus, an effective audit committee should contain sufficient independent directors. Vafeas (1999, 2003) points out that the efficiency and performance of an audit committee will be impaired if it is controlled by insiders. Menon and Williams (1994) also state that the executive members will reduce the independent status of the audit committee, and render it incapable of independent company review. Executive directors are inevitably close to company insiders which compromises their ability to review them. Under this circumstance, the audit committee will be unable to effectively audit the company, thereby increasing information asymmetry.

The compensation committee plays an important role in a company for its duty is to design an effective compensation package for the corporate managerial team. Anderson and Bizjak (2003) point out that the principal duty of a remuneration committee is to design the corporate compensation contract that will attract and retain suitable executives. The remuneration committee should therefore be an independent body in a company, since it must ensure that insiders cannot influence the compensation scheme. William (1985), and Anderson and Bizjak (2003) argue that if it is not independent, executives have

more opportunity to influence the compensation contract to their own advantage. An independent compensation committee ensures that the content of corporate compensation represents the interests of the majority of shareholders. Secondly, an independent compensation committee will reduce the information asymmetry, since it will disclose more information about the corporate compensation mechanism to the market (Laksmana, 2008). This will give shareholders more opportunity to monitor the corporate insiders.

If the board's nomination is less influenced by insiders, the board will have more reason to use its independent judgement in a company (Laksmana, 2008). Thus, nomination independence ensures board independence, and thus, increases the deterrence-value of the corporate governance mechanism. Vafeas (1999) points out that the benefits of using a nomination committee include:

1) higher efficiency of nomination

2) less influence of corporate executive team in nomination

3) enhancement of board independence.

Ruigrok *et al.* (2006) also state that the nomination committee enhances board independence. Vafeas (2003) illustrates that an independent nomination committee will increase the board's independence, since it ensures the independence of the board member. Greater independence of the nomination committee will motivate the board of directors to appoint more genuinely independent directors in companies. Thus, an independent nomination committee will increase board independence, and motivate the boards of listed companies to work correctly, thereby increasing corporate transparency.

3.3.2.3. Ownership structure

Institutional shareholders are considered an important component of corporate governance, since they are block holders and are able to monitor the managerial activities of the corporate executive team (Lin *et al.*, 2007). Compared with individual and small shareholders, institutional shareholders prefer to hold substantial shares in a company for they are likely to want to become part of the firm's management (Lin *et al.*, 2007). The dispersed ownership structure of modern listed companies leads to individual and small shareholders having fewer ambitions and opportunities to monitor them. Under these circumstances, companies may be less supervised by the shareholders, and thus an opportunity arises to increase information asymmetry and expropriate the right of these small shareholders. Therefore, the dispersed ownership needs to be appropriately concentrated in some large shareholders, like institutional shareholders. Appropriate ownership concentration gives institutional shareholders the opportunity to monitor the listed companies and reduce the information asymmetry. Lin *et al.* (2007) point out that the institutional shareholders prefer to appoint more independent directors to the board of directors. Thus, appropriate institutional ownership increases the board's independence and this places more supervisory pressure on the companies. Increased board independence will also drive the listed companies to increase the quality of corporate disclosure (Laidroo, 2009). Appropriate ownership concentration mitigates the phenomenon of earnings management, which also increases the quality of corporate disclosure (Gaspar and Massa, 2007; Chen-Lung *et al.*, 2009). Increased transparency of disclosure will help the investors to monitor the listed companies effectively and protect their rights.

Like a double-edge sword, ownership concentration can also have a harmful effect on investor protection, if shares of the company are inappropriately concentrated in large shareholdings. Inappropriate ownership concentration leads to large shareholders monopolizing a company's operation, due to their substantial influence. In this way they can manage companies in their own interests and impose an unexpected cost on the small shareholders (Faccio *et al.*, 2001; Anderson and Reeb, 2004; López-de-Foronda *et al.*, 2007). In other words, individual and small shareholders are excluded from the process of corporate decision making, thereby having few opportunities to monitor companies. Lower ownership concentration will increase a board's independence because the process of corporate nomination will be less influenced by the large shareholders (Cotter and Silvester, 2003). High ownership concentration leads to large shareholders controlling the board's nomination process for these listed companies. Thus they can nominate and appoint their own people to serve as members of the board. The board will then align its activities with the interests of the large shareholders rather than with those of all shareholders. Large shareholders will be able to persuade corporate executives to reduce the quality of disclosure, to ensure that this information remains their privilege (Laidroo, 2009).

To motivate managerial teams to align their activities with the interests of corporate shareholders, listed companies allow members of the executive teams to hold shares of their own companies. Appropriate managerial ownership will increase the alignment effect of the corporate governance mechanism and therefore reduce the conflict of interest between shareholders and insiders. López-de-Foronda *et al.* (2007) state that in the common law countries, such as UK and Ireland, low managerial ownership adds an

alignment effect to the managerial teams while high management ownership creates an entrenchment effect in the managerial teams. Appropriate managerial ownership aligns the activities of executives with the interests of the company since their wealth will be related to it. However, inappropriate managerial ownership motivates managerial teams to go against the supervision of the internal governance mechanism. Lasfer (2006) states that the proportion of managerial ownership negatively affects board independence; greater ownership motivates managerial teams to influence the board's composition. Independent directors will seek to reduce the influence of the corporate executives; thus corporate executives will want to reduce board independence. Additionally, executives who have large option positions are more likely to file earnings restatements and therefore manage the earning announcements of their companies (Burns and Kedia, 2003).

3.4. Good corporate governance

Companies need corporate governance to align the various interests of their participants. Alignment of interest will reduce the conflicts of interest among corporate participants; thereby increasing firm performance and decreasing asymmetric information. OECD (2004) concludes that the practice of good corporate governance should promote corporate transparency - to ensure the integrity of markets, protect the rights of all shareholders without any discrimination, and facilitate shareholders in exercising their rights. It recognises the rights of stakeholders and encourages cooperation between corporation and stakeholder in creating wealth for the corporation and society, increases the responsibility and accountability of the board to the shareholders, and discloses all material matters regarding companies in a timely and accurately way.

Khanchel (2007:743-745) summarises eight indicators of a good corporate governance mechanism: 1) independent directors, 2) independence of committees, 3) board size, 4) split chairman/CEO roles, 5) board meetings, 6) competence of audit committee members, 7) reputation of auditors, and 8) audit committee meetings. Moreover, a good corporate governance mechanism not only concerns the wealth of corporate shareholders, but it also protects their rights (Aguilera, 2005).

For instance, the UK Corporate Governance Code requires that a board of directors in companies should have the following features, such as high independence, appropriate board size, and the separation of CEO and chairman of a board.

However, empirical studies indicate that greater board independence (Mura, 2006), a small board (Coles *et al.*, 2008; Larmou and Vafeas, 2010), and role separation will not actually increase firm performance (Schmid and Zimmermann, 2008). Although these features increase the corporate transparency which protects the interest of other shareholders (Cornett *et al.*, 2009; Chung *et al.*, 2010; Bingfa *et al.,* 2011), they cannot be considered as features of good corporate governance, since an increase in firm performance is one of the important purposes of corporate governance.

However, the use of board subcommittees and institutional ownership are found to have positive effects on both firm performance and corporate transparency. The use of board subcommittees concentrates the relevant members of a board and reduces the influence of corporate executives on managerial decision making. This ensures that the board will manage companies objectively and comply with the interest of the company. Thus,

board subcommittees will also help companies improve firm performance and reduce asymmetric information (e.g. Koh *et al.*, 2007; Laksmana, 2008; Sun *et al.,* 2009). Institutional investors will help companies to increase the quality of corporate governance. As a consequence of the widespread ownership structure, the problem of the free-rider will harm the quality of corporate governance mechanisms of companies, since most small shareholders have little ability or inclination to monitor companies. Thus, corporate insiders will be less monitored by shareholders. Under this circumstance, institutional investors will work as representatives of many outside shareholder to monitor companies. They are able to drive corporate insiders to comply with the interest of the majority of shareholders and reduce asymmetric information. In this way, institutional investors will have positive effects on firm performance and corporate transparency (e.g. Gorton and Kahl, 2008; Chen-Lung *et al.*, 2009; Laidroo, 2009; Elyasiani and Jia, 2010). Thus, the use of board of subcommittees and the proportion of institutional ownership should be considered as features of good corporate governance.

As mentioned above, some features of a good corporate governance mechanism, such as high board independence, small board and the role separation, may not help companies to improve firm performance (e.g. Mura, 2006; Larmou and Vafeas, 2010; Zimmermann, 2008). However, the board subcommittees and institutional ownership are able to improve firm performance and reduce asymmetric information (e.g. Sun *et al.,* 2009; Elyasiani and Jia, 2010). Thus, Chinese companies may motivate the development board subcommittees and institutional ownership to increase the quality of corporate governance mechanisms.

3.5. Barriers to corporate governance in China

As mentioned in section 2.4 and section 2.6, barriers that limit the development of corporate governance in Chinese companies include the inappropriate ownership structure, the unsophisticated legislation, and the culture of Chinese society.

The choice of a corporate governance mechanism should be oriented by the interest of the majority of shareholders, since this will ensure that the corporate governance mechanism of companies will reduce conflicts of interest among most of the corporate participants. However, if the choice of corporate governance is driven by the interest of a single shareholder, the corporate governance mechanism may only reduce conflicts of interest between executives and holding shareholder and there will be no solution for the conflicts of interest among shareholders of companies. The inappropriate ownership concentration in Chinese companies means that corporate governance is less developed. Because of the influence exerted by holding shareholders, the nomination of companies is distorted and influenced by their interests (Rajagopalan and Zhang, 2008; Zhou, 2009; Chen *et al.*, 2011). Under this circumstance, the board of directors, board subcommittees, and executives of companies represent the interest of holding shareholder only. This may reduce the conflicts of interest between holding shareholders and executives, but the conflicts of interest among shareholders of companies will be hard to eliminate.

Stock segmentation also restricts the development of corporate governance mechanism in Chinese companies. Stock segmentation results in the market mechanism being unable to improve the quality of corporate

governance in Chinese companies (Tomasic and Fu, 2006). Companies with a poor corporate governance mechanism will become the target companies of other companies that have a good corporate governance mechanism. However, stock segmentation in Chinese companies causes mergers and acquisitions (M&A) to be rare in the Chinese market (Xu *et al.*, 2005). In this case, the market mechanism cannot drive Chinese companies to increase the quality of corporate governance.

A good corporate governance mechanism needs a series of sophisticated laws. However, the unsophisticated legislation of the Chinese market means that corporate governance is less developed. For instance, the duties and liabilities of independent directors in Chinese companies are not clearly defined (Jiang, 2009b). Thus, this causes independent directors to be ineffective in Chinese companies. The design of the board of supervisors also restricts the effectiveness of corporate governance in Chinese companies, as the duties of this institution are similar to that of the board of directors. Thus, the unsophisticated legislation of the Chinese market restricts the development of corporate governance in Chinese companies.

Finally, the culture of Chinese society is another reason for the limited development of corporate governance in Chinese market. Corporate governance is based on a series of contracts, and the participants of companies need to comply with these contracts. However, in Chinese society, the guanxi network is more important than the contract. The guanxi network is deeply rooted in Chinese society, making its importance higher than that of any contract. Thus, the guanxi network may drive participants of companies to break contracts. As a consequence, corporate governance will lose its deterrence

value in Chinese companies. Therefore, the guanxi network is another factor that limits the effectiveness of corporate governance in Chinese companies.

3.6. Research gap

Previous studies focus on the situation of the pre-reform period (e.g. Tomasic and Fu, 2006; Xu *et al.*, 2005; Chen *et al.*, 2007). Because of the recent market reforms, such as the elimination of non-tradable shares in the Chinese securities market, Chinese listed companies may be motivated to change their attitude to corporate governance mechanisms. Thus, it is valuable to test the relationship between corporate governance mechanism and firm performance after market reform. This will reveal how the market reforms change the effect of corporate governance mechanism on company performance in Chinese listed companies.

Previous studies of the Chinese securities market found that there is significant information within it (e.g. Shi and Jiang, 2003; Yan and Zhao, 2006). These studies found that before the corporate announcement date, such as the announcement of M&A, the stock price would be dramatically increased, while the effect of an information announcement on stock price was not significant in the short term. Thus, they argue that this phenomenon may suggest that the content of a corporate announcement is leaked to the market in advance, and there may be insider trading activities based on that leaked information. Yet, these studies pay less attention to the effect of the corporate governance mechanism on the phenomenon of information leakage. It is valuable to test the relationship between the corporate governance mechanism and the phenomenon of information leakage in the Chinese securities market, and thus, find out how the corporate governance mechanism might be used to reduce it.

As mentioned above, previous studies ignore the new development of corporate governance in the Chinese securities market. Thus, this thesis adopts data of pre and post reform periods to measure how these new developments of the Chinese securities market will impact on the effects of corporate governance on firm performance and information leakage in China.

3.7. Research hypotheses

The research hypotheses are developed as follows.

Board of directors

Fama (1980) argues that the board works as an efficient internal monitoring institution in listed companies. Thus, the composition of the board of directors will determine its effect on the quality of the corporate governance mechanism.

The board of directors will affect information asymmetry of the companies (Lim *et al.*, 2007). Shapiro (2005), Cheng and Lo (2006) state that corporate insiders have intentions to manipulate corporate disclosure. Dye (2001:184) says that 'any entity contemplating making a disclosure will disclose information that is favourable to the entity, and will not disclose information unfavourable to the entity'. Leftwich *et al.* (1981), Short and Keasey (1999) state that low board independence decreases the efficiency of corporate transparency. Independent directors have a responsibility to gather adequate information about firms (Nowak and McCabe, 2003). Forker (1992), Ho and Wong (2001) Bhagat and Black (2002), Karamanou and Vafeas(2005), Ahmed *et al.*(2006) and Kanagaretnam *et al.*(2007) argue that the proportion of independent directors on the board can improve the quality of corporate disclosure.

However, Vance (1964), Yermack(1996), Agrawal and Knoeber(1996), Bhagat and Bolton (2002), and Fernandes(2005) state that there is a negative relationship between board independence and firm performance. Independent directors are not involved in the managerial process of companies, and thus they are lack information about the company. Under this circumstance, their judgement may not be well enough informed, and therefore, the decisions of independent directors may be not suitable.

Hypothesis 1a: There is a negative relationship between board independence and information leakage in Chinese listed companies. (i.e. board independence decreases information leakage)

Hypotheses 1b: There is a negative relationship between board independence and firm performance in Chinese listed companies.

Board size will affect the efficiency of a board of directors in the corporate governance mechanism. Jensen (1993) argues that board size is an important indicator to measure board efficiency. Lipton and Lorsch (1992), Jensen (1993), Eisenberg *et al.* (1998), and Ahmed *et al.* (2006) state that board size negatively affects the quality of monitoring by a board, since a small board has higher efficiency in communication and coordination. Lakhal (2003) points out that a smaller board can put more monitoring pressure on the corporate insiders to ensure the quality of corporate information disclosure. Yermack (1996) and Eisenberg *et al.* (1998) state that the smaller board leads to the companies achieving better firm performance in the market. Hermalin and Weisbach (2003) also report a negative relationship between firm performance and the size of the board of directors.

Hypothesis 2a: There is a positive relationship between board size and information leakage in Chinese listed companies. (i.e. board size increases information leakage)

Hypothesis 2b: There is a negative relationship between board size and firm performance in Chinese listed companies.

The last characteristic is the board's leadership. In a company, the CEO and the Chairman are the two most important roles. The CEO is the leader of the corporate managerial team, while the Chairman heads the board of directors. Fama and Jensen (1983) illustrate that if one person simultaneously works as both the CEO and the Chairman, potential conflicts of interest within the company will be exacerbated, since the board's activities will be aligned with the interests of the managerial team. Separation of the role of CEO and Chairman increases the quality of board monitoring (Mak and Li, 2001; Goyal and Park, 2002). Thus, role-separation strengthens information disclosure and motivates corporate managerial teams to increase firm performance. Peng *et al*. (2010) find that the CEO duality will negatively moderate the positive relationship between organizational slack and firm performance in Chinese companies.

Hypotheses 3a: There is a negative relationship between role separation and information leakage in Chinese listed companies. (i.e. role separation decreases information leakage)

Hypotheses 3b: There is a positive relationship between role separation and firm performance in Chinese listed companies.

Board subcommittees

Besides the board of directors, board committees are another important pillar of the corporate governance mechanism. A board delegates some of its duties to its subcommittees (Vefeas, 1999). In a company, the audit committee, the compensation committee, and the nominating committee all work as consultants to the board of directors (Chhaochharia and Grinstein, 2007b). The majority of members of these subcommittees should ideally be independent directors, since this will reduce the influence of inside directors.

The function of an audit committee is to ensure the quality of financial statements and to oversee internal and external auditing. The remuneration or compensation committee is the designer of corporate executives' compensation packages. The nomination committee takes on the task of choosing candidates to be the board members. The establishment of board subcommittees will increase board performance and increase the quality of corporate governance (Menon *et al.,* 1994; Klein, 1998; Anderson and Bizjak, 2003; Vafeas, 1999; Vafeas, 2003).

Hypotheses 4a: there is a negative relationship between board subcommittees and information leakage in Chinese listed companies. (i.e. board subcommittees decrease information leakage)

Hypotheses 4b: there is a positive relationship between board subcommittees and firm performance in Chinese listed companies.

Ownership structure

A widespread ownership structure is a feature of modern listed companies. However, a widespread ownership structure can create the problem of the free-rider, which is caused by inexpert and/or passive investors, and thus

impair the quality of the corporate governance mechanism. Thus, shares need to be appropriately concentrated. A concentrated ownership structure leads to institutional shareholders becoming blockholders, thereby motivating them to monitor the managerial team of their companies (Admati *et al.*, 1994; Lin *et al.*, 2007). The existence of institutional investors thus increases the quality of company corporate governance. Singh and Gaur (2009) find a positive relationship between ownership concentration and firm performance. However, if the ownership concentration is inappropriately concentrated to the large shareholders, these large shareholders can expropriate the right of small shareholders and influence the quality of corporate governance via their substantial shareholding (Anderson and Reeb, 2004; López-de-Foronda *et al.*, 2007). Therefore, lower ownership concentration or absence of majority (holding) shareholders will increase board independence (Cotteret *et al.,* 2003).

Hypothesis 5a-1: there is a positive relationship between holding of the largest shareholder (as percentage of all shares) and information leakage in Chinese listed companies. (i.e. holding of largest shareholders increases information leakage)

Hypothesis 5a-2: there is a negative relationship between holding of the largest shareholder (as percentage of all shares) and firm performance in Chinese listed companies

In China, most of the listed companies are former SOEs. In the process of corporatisation of these listed companies, SOEs became public companies through IPO, and the state became majority (holding) shareholders. Shen and Lin (2009) state that state ownership weakens the possibilities of turnover of poorly performing executive staff in Chinese listed companies. Thus, Lin *et al.*

(2007), Chen *et al.* (2007b) and Li *et al.* (2008) state that a low proportion of state ownership will increase firm performance. State ownership will exacerbate the information asymmetry between companies and shareholders (Choi *et al.,* 2010). Additionally the state holdings will reduce the efficiency of market regulation (Berkman *et al.,* 2009). Thus, state ownership will increase information asymmetry, thereby causing more cumulative abnormal returns prior to the announcement date.

Hypothesis 5b-1: There is a positive relationship between the holding of the state (as percentage of all shares) and information leakage in the Chinese listed companies. (i.e. the holding of the state increases information leakage.)

Hypothesis 5b-2: There is a negative relationship between the holding of the state (as percentage of all shares) and firm performance of the Chinese listed companies.

Another feature of the ownership structure of Chinese listed companies is that the majority of shares of the Chinese companies are non-tradable shares. Non-tradable shares cannot be freely traded in the market. Tomasic and Fu (2006) state that the non-tradable shares make it impossible for the market mechanism to improve the quality of corporate governance mechanism. Thus, the Chinese government and the market regulatory authority have begun to reduce the number of non-tradable shares.

Hypothesis 5c-1: There is a negative relationship between the percentage of tradable shares and information leakage in Chinese listed companies. (i.e percentage of tradable shares decreases information leakage.)

Hypothesis 5c-2: There is a positive relationship between the percentage of tradable shares and firm performance in Chinese listed companies.

Nowadays, institutional investors have become important market participants. Shen *et al.* (2009) point out that institutional ownership positively affects the turnover of corporate executives when firm performance is poor. Hovey *et al.* (2003) and Lin *et al.* (2007) state that institutional ownership is positively related to firm performance.

Hypothesis 5d-1: There is a negative relationship between the holding of institutional investors (as percentage of all shares) and information leakage in Chinese listed companies. (i.e.the holding of institutional investors decreases information leakage.)

Hypothesis 5d-2: There is a positive relationship between the holding of institutional investors (as percentage of all shares) and firm performance in Chinese listed companies.

Board of supervisors

In Chinese listed companies, the board of supervisors is another important pillar of internal governance. The function of a board of supervisors is to represent stakeholders and employees in monitoring both the managerial team and the board of directors (Wang, 2005). However, the board of directors is the most powerful monitoring institution in the company, and so the supervisory board plays a purely consultative role (Tian and Estrin, 2005). Therefore, it is thought that the creation of a board of supervisors does not have a significant effect on the quality of corporate governance in the Chinese markets. However, recent market reform has given more regulatory power to the board of

supervisors, and it is expected that the supervisory board will now have more impact on company performance and CARs.

Hypothesis 6a: There is a negative relationship between the size of the board of supervisors and information leakage in Chinese listed companies. (i.e. the size of the board of supervisors decreases information leakage)

Hypothesis 6b: There is no significant relationship between the size of the board of supervisors and firm performance in Chinese listed companies.

3.8. Conclusion

This chapter reviewed the relevant theories and the previous studies. It also included sections on theoretical background and on empirical evidence.

Firstly, the section of theoretical background briefly described the purpose of a corporate governance mechanism. Companies rely on corporate governance mechanisms to reduce conflicts of interest among the corporate participants. The section on theoretical background briefly described the components of internal governance mechanisms in corporate governance. Additionally, the section on theoretical background suggested the direction for the future development of corporate governance mechanisms.

Secondly, the section on theoretical background briefly described the effect of information on the securities market. Because of the information asymmetry, inside information will help investors to gain an abnormal return. Thus, insider trading activities destroy market fairness and integrity .Several reasons are reviewed which support the regulation of insider trading. This section listed these reasons.

Thirdly, the section of empirical evidence reviewed the previous relevant studies about the relationship between corporate governance and firm performance. Previous studies reveal that the corporate governance mechanism will affect firm performance of the listed companies. Firstly, composition of board of directors will influence firm performance. For instance, if a company separates its CEO from the chairmanship of its board of directors, there will be fewer conflicts of interest in this company, thereby helping companies to achieve good performance (Fama and Jensen, 1983). Secondly, use of board subcommittees will increase firm performance. For instance, by increasing corporate transparency the audit committee motivates the managerial team to align its managerial activities with the interests of corporate shareholders (Koh *et al.,* 2007). Finally, ownership structure will affect firm performance. For instance, a greater proportion of institutional ownership is a factor in improved firm performance (Kini *et al.,* 1995).

Fourthly, the section of empirical evidence reviewed previous studies of the relationship between corporate governance mechanisms and corporate transparency. Firstly, board composition will affect corporate transparency. For instance, board independence increases corporate transparency (Cornet *et al.,* 2009). Secondly, ownership structure will affect the quality of corporate transparency. For instance, institutional ownership positively influences board independence, thereby increasing corporate transparency (Chen-Lung *et al.,* 2009). Inappropriate ownership concentration will lower corporate transparency, since it impairs board independence (Laidroo, 2009). The use of board subcommittees will drive companies to increase corporate transparency and reduce information asymmetry. Laksmana (2008) points out that the

compensation committee will disclose compensation information to investors,

thereby reducing the information asymmetry between companies and investors.

Table 3-1 summary of empirical evidence

Corporate governance and firm performance	
Board of directors	
Board independence will increase firm performance	Hermalin (1988); Hemalin and Weisbach (1998); Rosenstein and Wyatt (1990); Dahya *et al* . (2008)
Board independence will harm firm performance	Agrawal and Knoeber(1996; 1998); Yermack (1996); Bhagat and Black (2002); Fernandes (2005); Mura (2006)
Dual-role leadership will increase firm performance	Fama and Jensen (1983)
Dual-role leadership will harm firm performance	Brickley *et al.* (1997); Schmid and Zimmermann (2008);
Large board will help companies to have a better firm performance	Dalton *et al.* (1999); Belhkir (2004)
Large board will decrease firm performance	Yermack(1996); Hermalin and Weisbach(2003); Guest (2009)
Board subcommittees	
An audit committee will increase firm performance	Koh *et al.* (2007)
A compensation committee will increase firm performance	Sun *et al.* (2009)
Ownership structure	
Appropriate ownership concentration is a factor in increasing firm performance	Admati *et al.* (1994); Kini *et al.* (1995); Gorton and Kahl (2008); Elyasiani and Jia (2010)
Inappropriate ownership concentration will harm firm performance	Yeh (2005); Dahya *et al.* (2008)
Appropriate managerial ownership will help companies to have good performance	Loderer and Martin (1997); Coles *et al.* (2007); Bauguess *et al.* (2009)
Corporate governance and information transparency	
Board of directors	
Board independence will increase information transparency	Forker (1992); Nowak and McCabe (2003); Ahmed *et al.* (2006); Kanagaretnam *et al.* (2007); Cornett *et al.* (2009)
Dual role leadership will decrease information transparency	Ho and Wong (2001); Binfga *et al.* (2011),
Small board will help companies to increase information transparency	Vafeas (2000); Ryan Jr and Wiggins Iii (2004)
Board subcommittees	
An audit committee will increase information transparency	Cotter and Silvester (2003); Koh *et al.* (2007)
A compensation committee will increase information transparency	Laksmana (2008)
A nomination committee will increase information transparency	Ruigrok *et al.* (2006)
Ownership structure	
Appropriate ownership concentration is a factor increasing information transparency	Gaspar and Massa (2007); Chen-Lung *et al.* (2009); Laidroo (2009)
Inappropriate ownership concentration will harm information transparency	Faccio *et al.* (2001); Anderson and Reeb (2004); López-de-Foronda *et al.* (2007); Laidroo (2009)

Chapter 4. Methodology

4.1. Introduction

The purpose of this chapter is to discuss the research methods that will be employed in this thesis.

Firstly, this chapter briefly introduces the research philosophy of this thesis Research philosophy provides the guideline for researchers for the discovery and development of knowledge. This thesis chooses epistemology as its research philosophy. Additionally, this thesis will use a deductive approach and a quantitative method.

Secondly, this chapter will discuss the collection of data. The data are collected from the annual reports of Chinese listed companies between 2004 & 2008. This includes data about the financial ratios of Chinese listed companies, board characteristics, ownership structure, board subcommittees, and boards of supervisors. Information on share prices is collected from DataStream. Descriptive statistics on the data will be presented in section 4.3 of this chapter.

4.2. Data collection

To test the hypotheses formulated in section 3.5, data has been collected on companies as listed in Shanghai and Shenzhen stock exchanges. In 2005, the Chinese government and the market regulator launched new market reforms. One feature of these reforms changed the ownership structure of Chinese listed companies. This was effective from the end of year 2005. This thesis will test the effects of the corporate governance mechanism on firm

performance and CARs. To test the hypotheses formulated in section 4.3, data is taken from companies listed on Shanghai & Shenzhen stock exchanges. However, the corporate governance data is available only from year 2004. Therefore, the sample period is from year 2004 to year 2008. Firstly, the data sample for this thesis only includes the non-financial listed companies because firm performance of financial companies varies from that of non-financial companies. Secondly, this sample excludes companies that are delisted before 2008. Two companies were delisted from the Shanghai stock exchanges before 2008, and their size is very small. Although this may cause a survivorship bias, it is expected that their influence will be too small to substantially affect the thesis findings. The final sample contains 1165 non-financial listed companies.

Previous studies state that the composition of board subcommittee will affect firm performance (e.g. Vafeas, 1999; Vafeas, 2000; Vafeas, 2003; Clarke, 2007). However, since the annual reports of Chinese companies lack relevant information, this thesis is unable to assess the effect of the composition of board subcommittees on firm performance in Chinese companies. In this case, this thesis only examines the effect of the presence of board subcommittees on firm performance and information leakage in Chinese companies. If there are more relevant data in future, it will be worthwhile to assess the effect of the composition of board subcommittees on firm performance and information leakage in Chinese companies.

The time series of market index and prices of each company are collected from Datastream and finance.yahoo.cn. Data on the corporate governance of the Chinese listed companies are collected from annual reports available from the website www.cninfo.com, which is provided by the China Securities

Regulatory Commission (CSRC). The accounting (financial) data of the Chinese listed companies will have low quality due to the embryonic accounting standards(Chang and Wong, 2004). Although the website of the China Securities Regulatory Commission cannot fully ensure the quality of accounting and corporate governance data, it will reduce the incidence of companies manipulating information for their annual reports. The CSRC requires all companies to ensure the quality before they submit their annual report. Thus, the information from this website will be trusted.

In this thesis, the data sample is composed of panel data. Compared with the time series data and cross-sectional data, the panel data has following advantages:

- First, and most importantly, we can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone.

- Second, it is often interesting to examine how variables, or the relationship between them, change dynamically (over time). To do this, using pure time-series data would often require a long run of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis test. But by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behaviour of a large number of entities at the same time. The additional variation introduced by combining the

data in this way can also help to mitigate problems of multicollinearity that may arise if time series are modelled individually.

- Third, as will become apparent below, by structuring the model in an appropriate way, we can remove the impact of certain forms of omitted variables bias in regression results (Brooks, 2008:488-489).

The following variables can be directly collected from the annual report:

BV: total asset of the listed companies.

TPER: proportions of the tradable shares of the ownership structure of Chinese listed companies.

1STPER: proportions of shareholdings of the largest shareholder.

SPER: the total state ownership.

TINTPER: the proportions of tradable institutional ownership.

BSIZE: the number of directors on the board of Chinese listed companies.

SSIZE: the number of members of the board of supervisors.

INDPER: the proportion of independent directors on the board. This variable is calculated as follows.

Proportion of independent directors = number of independent directors / total number on the board of directors.

DERATIO: the ratio of debt over the equity. This variable is calculated as follows:

D/E ratio = debt of company / equity of company

The following dummy variables also can be collected from the annual report.

ROLESEP: if CEO and Chairman is not the same individual =1, otherwise =0.

DUAC: if the company has an audit committee =1, otherwise=0.

DUCC: if the company has a compensation committee =1, otherwise=0.

DUNC: if the company has a nomination committee =1, otherwise=0.

DUREFORM: if the year is 2004 and 2005 =1, otherwise =0

4.3.   Descriptive statistics

The descriptive statistics (table 4-1) show the variables examined in this thesis.

Table 4-1 descriptive statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	N		Mean	Median	Maximum	Minimum	Std. Dev.	N
Panel A: full sample							**Panel D: 2006**						
BSIZE	9.53	9.00	20.00	3.00	2.06	5815	BSIZE	9.532244	9	20	4	2.04921	1163
BV	4603883	1801556	752000000	51.134	20835809	5815	BV	4321456	1772260	595000000	222.849	19714620	1163
1STPER	0.382	0.361	0.852	0.008	0.159	5815	1STPER	0.363	0.342	0.846	0.045	0.149	1163
DUAC	0.481	0	1	0	0.500	5815	DUAC	0.218	0	1	0	0.413	1163
DUCC	0.503	1	1	0	0.500	5815	DUCC	0.261	0	1	0	0.439	1163
ROLESEP	0.905	1	1	0	0.293	5815	ROLESEP	0.916	1	1	0	0.278	1163
DUNC	0.348	0	1	0	0.477	5815	DUNC	0.174	0	1	0	0.379	1163
INDPER	0.350	0.333	0.750	0.030	0.049	5815	INDPER	0.348	0.333	0.750	0.125	0.047	1163
SPER	0.336	0.361	0.970	0	0.238	5815	SPER	0.318	0.342	0.920	0	0.227	1163
SSIZE	4.138	3.000	13.000	1	1.398	5815	SSIZE	4.129	3.000	13.000	2.000	1.406	1163
TINTPER	0.059	0.022	0.680	0	0.084	5815	TINTPER	0.056	0.020	0.606	0	0.080	1163
TPER	0.501	0.477	1	0.025	0.170	5815	TPER	0.493	0.480	1	0.098	0.135	1163
DERATIO	1.624	1.023	1913.082	-1671.430	35.598	5815	DERATIO	0.748171	1.101172	692.6346	-1671.43	53.532	1163
Panel B: 2004							**Panel E: 2007**						
BSIZE	9.802236	9	19	5	2.205945	1163	BSIZE	9.402408	9	18	3	2.015788	1163
BV	3227951	1497286	390000000	20707.63	13059092	1163	BV	5478974	2050941	719000000	1942.958	24002662	1163
1STPER	0.425	0.412	0.850	0.023	0.166	1163	1STPER	0.356	0.338	0.838	0.008	0.151	1163
DUAC	0.180	0	1	0	0.384	1163	DUAC	0.818	1	1	0	0.386	1163
DUCC	0.222	0	1	0	0.416	1163	DUCC	0.815	1	1	0	0.388	1163
ROLESEP	0.905	1	1	0	0.294	1163	ROLESEP	0.900	1	1	0	0.300	1163
DUNC	0.146	0	1	0	0.353	1163	DUNC	0.531	1	1	0	0.499	1163
INDPER	0.341	0.333	0.600	0.083	0.047	1163	INDPER	0.357	0.333	0.750	0.030	0.052	1163
SPER	0.391	0.439	0.956	0	0.248	1163	SPER	0.298	0.319	0.838	0	0.226	1163
SSIZE	4.228	4.000	13.000	2.000	1.451	1163	SSIZE	4.095	3.000	12.000	2.000	1.360	1163
TINTPER	0.034	0.006	0.585	0	0.066	1163	TINTPER	0.077	0.050	0.545	0	0.085	1163
TPER	0.398	0.379	1	0.087	0.119	1163	TPER	0.565	0.552	1	0.068	0.155	1163
DERATIO	1.506	0.966	237.718	-49.486	8.635	1163	DERATIO	1.187	1.006	244.252	-316.136	14.069	1163
Panel C: 2005							**Panel F: 2008**						
BSIZE	9.644884	9	19	5	2.047	1163	BSIZE	9.251935	9	18	4	1.936421	1163
BV	3662179	1594586	521000000	18739.95	17099804	1162	BV	6330282	2146261	752000000	51.134	27167370	1163
1STPER	0.411	0.393	0.838	0.042	0.161	1163	1STPER	0.356267	0.336	0.852	0.037	0.153	1163
DUAC	0.202	0	1	0	0.402	1163	DUAC	0.988822	1	1	0	0.105	1163
DUCC	0.240	0	1	0	0.427	1163	DUCC	0.976784	1	1	0	0.151	1163
ROLESEP	0.919	1	1	0	0.273	1163	ROLESEP	0.88736	1	1	0	0.316	1163
DUNC	0.162	0	1	0	0.368	1163	DUNC	0.729149	1	1	0	0.445	1163
INDPER	0.345	0.333	0.571	0.091	0.043	1163	INDPER	0.361017	0.333	0.600	0.143	0.052	1163
SPER	0.376	0.410	0.956	0	0.244	1163	SPER	0.297565	0.314	0.970	0	0.228	1163
SSIZE	4.192	4.000	13.000	2.000	1.443	1163	SSIZE	4.047291	3.000	12.000	1	1.319	1163
TINTPER	0.040	0.007	0.588	0	0.071	1163	TINTPER	0.088402	0.053	0.680	0	0.102	1163
TPER	0.418	0.397	1	0.087	0.123	1163	TPER	0.630754	0.623	1	0.025	0.185	1163
DERATIO	1.617	1.034	100.446	-91.881	6.364	1163	DERATIO	3.062211	1.044	1913.082	-50.898	56.202	1163

Table 4-1 reports an increase in firm size of the non-financial Chinese listed companies. In panel B, which represents the year 2004, the average BV is 3,227,951 (1000RMB). In panel F, which represents the year 2008, the average BV has increased to 6,330,282 (1000RMB). This reflects the fact that the total assets of Chinese listed companies were expanding during the period 2004 to 2008.

Figures in table 4-1 indicate that the ownership structure of Chinese listed companies was experiencing dramatic changes during the period from the fiscal year 2004 to the fiscal year 2008. Firstly, there is a decrease in SPER which represents state ownership. In panel B, the average value of SPER is 39.14%, and this has decreased to 29.76% in panel F. However, table 4-1shows an upward trend in the maximum value of SPER. Changes of the value of SPER indicate that the state is concentrating its influence on some specific industries, thereby allowing more companies to become private companies. These changes reflect the fact that the Chinese government is amending its influence on the Chinese economy. Secondly, table 4-1 reports changes in ownership concentration of Chinese listed companies. In panel A, the average value of 1STPER, the proxy for ownership concentration, is 42.51%. In panel F, this figure has decreased to 35.63%. Thirdly, table 4-1 reports that the percentage of tradable shares of Chinese listed companies has increased. Panel B reports the average proportion of tradable shares (TPER) is 39.8%, and this figure has increased to 63.1% in panel F. Changes of TPER and 1STPER indicate that market liquidity in the Chinese market is rising, since the supply of shares has been increased. This increase will drive more investors to join the Chinese market. Finally, as a consequence of the increase in tradable shares, table 4-1 indicates that there is an increase in institutional ownership. In panel B, the

average value of TINTPER is 3.39%, and it has increased to 8.84% in panel F. This improvement means that institutional investors are becoming important market participants in the Chinese market. Table 4-1 indicates that Chinese listed companies were optimizing their ownership structure during the period fiscal years 2004 to 2008, and are thus trying to reduce the influence of single shareholders.

Compared with ownership structure, the characteristics of the board of directors of Chinese listed companies were not experiencing the same significant changes during the same period. The relevant codes and laws require all of the Chinese listed companies to have a board of directors, and the board of directors acts behalf of shareholders to manage those companies. Table 4-1 indicates that BSIZE, which represents size of the board of directors, remains relatively stable. The average value of BSIZE is 9.80 in panel B. In panel B, the largest board of directors contains 19 directors, and the smallest one only contains 5 directors. The average value of BSIZE has slightly decreased to 9.29 in panel F. In panel F, the maximum value of BSIZE is 18, and the minimum value of BSIZE is 4. The relevant codes of the Chinese market require that the minimum proportion of independent directors on a board of directors is one third. During the period from the fiscal year 2004 to the fiscal year 2008, the majority of Chinese listed companies fully complied with this requirement. However, few of them wanted to increase board independence. From panel B to panel F, the INDPER has increased from just 34.08% to 36.10%. Although role separation is not a mandatory regulation by the Chinese market regulatory authority, from year 2004 to year 2008, the majority of Chinese listed companies adopted the role separation leadership structure. The

average value of ROLESEP is 90.46% in panel B, and it has slightly decreased to 88.74% in panel F.

Table 4-1 demonstrates that more Chinese listed companies are establishing board subcommittees. In panel B, 17.97% of companies have an audit committee, 22.18% of companies have a compensation committee, and 14.61% of companies have a nomination committee. In panel F, 98.88% of companies have appointed an audit committee, 97.67% of companies have appointed a compensation committee, and 72.91% of companies have appointed a nomination committee.

Besides the board of directors, another important component of the corporate governance mechanism in Chinese listed companies is the board of supervisors. Figures of table 4-1 indicate that changes of the board of supervisors are similar to that of the board of directors. In panel B, the average value of SSIZE is 4.23 and it has slightly decreased to 4.05 in panel F. Thus, the board of supervisors also retains its stability in our sample.

During 2004 to 2008, the average leverage of Chinese listed companies, which is measured by the debt-to-equity ratio, is 1.6241335. In 2004, the average D/E ratio of Chinese listed companies is 1.505868, and it has been dramatically decreased to 0.7488171 in 2006. However, this figure is dramatically increased to 3.062211 in 2008.

Overall, figures of table 4-1 reflect the fact that the Chinese listed companies are experiencing dramatic changes of ownership structure during the period from the fiscal year 2004 to the fiscal year 2008. Additionally, table 4-1 indicates that the number of companies which have established board subcommittees is increasing. However, figures of table 4-1 reveal that the

Chinese listed companies are not inclined to change boards of directors and boards of supervisors. These figures show that the main reforms of the corporate governance mechanism of Chinese listed companies are in the changes of the ownership structure in the period 2004 to 2008.

4.4. Correlations between the variables

Table 4-2 presents the correlations between the variables. The correlation matrix shows that SPER is highly correlated to the 1STPER (0.62). Additionally; DUAC, DUCC, and DUNC are highly correlated to each other (0.71, 0.74, and 0.91). The high correlation between the variables may cause a concern for multicollinearity in the regression estimation. One solution for the multicollinearity is to omit one of the variables, which are highly correlated. To reduce the influence of multicollinearity on the results, the original regression model (mentioned in section 4.7) is refined with one of the two highly correlated variables, (i.e. either SPER or 1STPER in the regression model).

4.5. Conclusion

The purpose of this thesis is to find the relationship between the corporate governance mechanism and firm performance in Chinese listed companies, and the relationship between a corporate governance mechanism and information leakage in the Chinese securities market. Thus, this thesis has chosen epistemology as its research philosophy and developed a series of testable hypotheses that are related to the relevant theories. As a result, the research approach of this thesis qualifies as using a deductive approach. Additionally, this thesis has adopted a quantitative research method to find empirical results to test the hypotheses.

To measure the information leakage that might be caused by insider trading in the Chinese listed companies, this thesis has adopted event study. The event study is employed to test the abnormal return during the period of pre-announcement. If the significant cumulative abnormal return (CAR) appears in the period of pre-announcement, it will reflect the phenomenon of inside information leakage. Additionally, this thesis has also employed run-up index and normalized abnormal volume to measure the phenomenon of information leakage in Chinese securities market.

Finally, this chapter provided descriptive statistics to reflect the recent developments of corporate governance of the Chinese listed companies. The statistics reveal that, during the last few years, the Chinese listed companies have been changing their ownership structure. For instance, the proportion of state ownership and the ownership of majority (holding) shareholders is decreasing, while the proportion of institutional ownership and tradable shares is increasing.

The purpose of this thesis is to empirically evaluate effects of corporate governance on firm performance and information leakage in Chinese companies. The next three chapters will represent and discuss the empirical results of this thesis. Chapter 5 represents and discusses the empirical relationship between corporate governance and firm performance in Chinese companies. Chapter 6 empirically evaluates the problem of information leakage in Chinese securities market. Chapter 7 reports and interprets the empirical relationship between corporate governance and information leakage in Chinese companies.

Table 4-2 Pearson correlation matrix

Correlation t-Statistic Probability	Firm size	Debt-to-equity	Ownership concentration	state ownership	Institution ownership	tradable shares	size of BOD	Independence of BOD	Leadership of BOD	Audit Committee	Compensation Committee	nomination committee	Size of BOS
Firm size	1 ----- -----												
Debt-to-equity	-0.0044 -0.3079 0.7582	1 ----- -----											
Ownership concentration	0.2549 18.3262 0	0 -0.0029 0.9977	1 ----- -----										
State ownership	0.2598 18.7035 0	0.0010 0.0686 0.9453	0.6222 55.2553 0	1 ----- -----									
Institutional ownership	0.2824 20.4712 0	0.0017 0.1178 0.9063	-0.0759 -5.2941 0	-0.1220 -8.5444 0	1 ----- -----								
Tradable share	-0.0369 -2.5675 0.0103	-0.0100 -0.6921 0.4889	-0.5760 -48.9876 0	-0.4301 -33.1262 0	0.2956 21.5097 0	1 ----- -----							
Size of BOD	0.2667 19.2373 0	-0.0137 -0.9558 0.3392	0.0220 1.5287 0.1264	0.1804 12.7550 0	0.0696 4.8481 0	-0.0761 -5.3030 0	1 ----- -----						
Independence of BOD	0.0108 0.7476 0.4547	0.0033 0.2309 0.8174	-0.0360 -2.5071 0.0122	-0.1027 -7.1759 0	0.0693 4.8303 0	0.0922 6.4356 0	-0.2691 -19.4250 0	1 ----- -----					
Leadership of BOD	0.0426 2.9637 0.0031	-0.0022 -0.1516 0.8795	0.0853 5.9551 0	0.1113 7.7866 0	-0.0180 -1.2524 0.2105	-0.0606 -4.2220 0	0.0434 3.0170 0.0026	-0.0460 -3.2042 0.0014	1 ----- -----				
Audit Committee	0.1301 9.1209 0	0.0091 0.6303 0.5285	-0.0819 -5.7136 0	-0.0494 -3.4381 0.0006	0.2415 17.3021 0	0.3000 21.8685 0	-0.0226 -1.5721 0.1160	0.1064 7.4424 0	-0.0283 -1.9663 0.0493	1 ----- -----			
Compensation Committee	0.1131 7.9162 0	0.0093 0.6474 0.5174	-0.0849 -5.9233 0	-0.0492 -3.4274 0.0006	0.2272 16.2189 0	0.2895 21.0315 0	-0.0238 -1.6545 0.0981	0.1014 7.0846 0	-0.0192 -1.3377 0.1810	0.9115 154.1055 0	1 ----- -----		
Nomination committee	0.0704 4.9059 0	0.0051 0.3533 0.7239	-0.0842 -5.8766 0	-0.0524 -3.6455 0.0003	0.1583 11.1480 0	0.2274 16.2362 0	-0.0194 -1.3508 0.1768	0.0899 6.2787 0	-0.0206 -1.4303 0.1527	0.7368 75.7575 0	0.7109 70.2821 0	1 ----- -----	
Size of BOS	0.1842 13.0301 0	-0.0066 -0.4606 0.6451	0.0635 4.4250 0	0.2233 15.9311 0	0.0049 0.3392 0.7345	-0.0661 -4.6052 0	0.3113 22.7768 0	-0.0976 -6.8155 0	0.0504 3.5105 0.0005	-0.0084 -0.5874 0.5570	-0.0029 -0.1993 0.8420	-0.0051 -0.3540 0.7233	1 ----- -----

Chapter 5. Corporate governance and firm performance

5.1. Introduction

This chapter reports and discusses the empirical results of the regression models which represent the relationship between the corporate governance mechanism and firm performance of Chinese listed companies. Because of the state influence on the Chinese economy, the full sample will be divided between state owned companies and private companies. In state owned listed companies, the majority (holding) shareholders or the largest shareholder is the state (Qu and Wang, 2005). Compared with state owned listed companies, the majority (holding) shareholder or largest shareholder in private companies is the non-state investor (Qu and Wang, 2005). From the end of year 2005, the Chinese government and market regulatory agency pressured all of the Chinese listed companies to enter the process of new market reform. Thus, regressions of the three samples have considered the influence of market reform on empirical results.

Firstly, the firm size (LNBV) and the debt-to-equity ratio (DERATIO), which are control variables, do not affect firm performance which is measured by return on equity (ROE). The LNBV and DERATIO have negative effects on firm performance that is measured by return on asset (ROA). Additionally, LNBV has

a negative effect on firm performance that is measured by Tobin's Q (Q). This is inconsistent with previous research (e.g. Acs and Audretsch, 1987; Vaona and Pianta, 2008; Rochina-Barrachina *et al.*, 2010).

Secondly, the estimation of dummy variable indicates that there is a negative relationship between the reform dummy variable and firm performance in Chinese listed companies. It means that the firm performance of Chinese listed companies after market reform is better than that of Chinese listed companies before market reform. In other words, market reform motivates Chinese listed companies to enhance their firm performance. This is consistent with the purpose of this market reform, which is to increase the effect of the market mechanism on Chinese listed companies in order to improve their firm performance.

Thirdly, previous studies have shown that institutional ownership will help companies to achieve good firm performance. Hovey *et al.* (2003) and Lin *et al.* (2007) show that the institutional investors have the ability to monitor the managerial activities of managers, and they also have the ability to reduce the influence of inside large shareholders, such as the majority (holding) shareholder. This will reduce the conflicts of interest among corporate participants of Chinese listed companies, and thus increase their firm performance.

Fourthly, the empirical results show that the boards of directors do not affect firm performance of the Chinese listed companies. Under the influence of large shareholders, especially the majority (holding) shareholder, the composition of the board of directors and the board of supervisors is influenced by the interests of those large shareholders (Rajagopalan and Zhang, 2008;

126

Kang *et al.,* 2008; Zhou, 2009). Additionally, compared with the board of directors, the board of supervisors lacks power (Tian and Estrin, 2005). Thus, the board of directors and the board of supervisors do not affect firm performance of Chinese listed companies.

Fifthly, previous studies have suggested that state ownership is a central factor that can damage firm performance of Chinese listed companies (Chen *et al.,* 2007b; Li *et al.* 2008). Due to state control, poorly-performing CEOs cannot be replaced immediately. Additionally the state negatively influences the compensation level set for executives (Rehbein, 2007). Previous studies also indicate that the inappropriate ownership concentration is a factor in damaging firm performance of listed companies (Anderson and Reeb, 2004; López-de-Foronda *et al.*, 2007). However, empirical results indicate that state ownership (SPER) and ownership concentration (1STPER) do not affect firm performance in Chinese listed companies.

Although the Chinese market has experienced reform for over 30 years, the influence of the state on the national economy is still substantial. As a result of this, some listed companies will be advantaged by state ownership. However, state ownership is not beneficial to all of listed companies. Thus, there is no significant linear relationship between the SPER and firm performance in Chinese listed companies. The unsophisticated corporate governance mechanism causes a serious conflict of interest between shareholders and executives. In this case, ownership concentration or the large holding shareholder will be a solution to the problem. Large shareholders will exert substantial supervision pressure on the executives of listed companies to motivate them to increase firm performance. However, ownership concentration

will exacerbate the conflict of interest between large and small shareholders. Thus, ownership concentration will damage company efforts to increase firm performance. This may explain the lack of significant relationship between ownership concentration and firm performance in Chinese listed companies.

Sixthly, the proportion of tradable shares has a negative effect on firm performance in Chinese listed companies. This is inconsistent with the purpose of the reduction of non-tradable shares. Xu *et al.* (2005), Tomasic and Fu (2006) and Song (2008) state that non-tradable shares restrict the corporate governance mechanism in Chinese listed companies. Thus, the reduction of non-tradable shares should motivate the development of corporate governance mechanisms to increase firm performance of Chinese listed companies. However, the reduction of non-tradable shares exacerbates the problem of the free-rider, which is caused by the diffused nature of small investors. This will reduce the efficiency of corporate governance, and thus impair firm performance.

Finally, although previous studies find that subcommittees do not properly work in Chinese listed companies (Lin *et al.*, 2008), the empirical results of this thesis find that the use of subcommittees will increase company performance of Chinese listed companies.

5.2. Regression Analysis

5.2.1. Definition

To understand and describe the relationship between one given variable and other variable(s), a useful tool is regression analysis. Brooks (2008:27) states that 'regression is an attempt to explain movements in variables by

reference to movements in one or more variables'. Gujarati (1999:123) also states that 'regression analysis is concerned with the study of the relationship between one variable called the explained, or dependent, variable, and one or more other variables, called independent, or explanatory, variables'.

Regression analysis cannot suggest a causative relationship between dependent and independent variables. Since, 'causality must be justified, or inferred, from the theory that underlies the phenomenon that is tested empirically' (Gujarati, 1999:124).

5.2.2. Simple and multiple linear regressions

A typical linear regression model contains one dependent variable and one independent variable. The two-variable regression model is called the simple regression model, since 'the dependent variable is a function of just one explanatory variable' (Gujarati, 1999:134).

$$Y = \alpha + \beta X + \epsilon$$

Practically, however, dependent variables cannot be completely explained by a single explanatory variable. Therefore, the single explanatory variable will be extended to multiple explanatory variables. Multi-regression is 'a regression in which more than one dependent, or explanatory, variable is used to explain the behaviour of the dependent variable' (Gujarati, 1999:1354).

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_n X_n + \epsilon$$

Corporate governance is a complex term covering various factors. Boards of directors, subcommittees, and ownership structure will influence the effect of the corporate governance mechanism on firm performance and corporate

transparency. Thus, the single linear regression cannot completely describe the relationship between the corporate governance mechanism and information leakage, or the relationship between the corporate governance mechanism and firm performance. Thus, the multivariable linear regression will be suitable for this thesis.

5.2.3. Estimation of parameters

5.2.3.1.   OLS

To use the regression model to solve a specific problem, researchers have to calculate the value of each parameter. The function of a parameter is to demonstrate how the explanatory variables affect the explained variable. Among the various estimation methods, the most useful one is the Ordinary Least Square (OLS).

The method of OLS entails taking each vertical distance from the point to the line, squaring it and then minimising the total sum of the areas of squares. This can be viewed as equivalent to minimising the sum of the areas of the squares drawn from the points to the line (Brooks, 2008:31).

OLS is a popular method of estimating a parameter in linear regression analysis and as a consequence of its nature is called BLUE (Best Linear Unbiased Estimators) (Gujarati, 1999; Brooks, 2008). This property makes OLS more advanced than the other estimation methods. Gujarati (1999) states that the property of OLS will not be impaired as the number of variables is increased, and therefore, OLS is also useful in the multivariable regression model. In this thesis the multivariable regression model is selected. Thus, an estimation

method is needed in which the estimation accuracy will not be influenced by an increased number of variables. The property of BLUE in OLS makes it a good choice of estimation method.

5.2.3.2. Assumptions of OLS

To ensure the OLS can properly generate precise estimators, the linear regression model has to fit the following assumptions: "1) $E(u_t) = 0$; 2) $var(u_t) = \sigma^2 < \infty$; 3) $cov(u_i, u_j) = 0$; 4) $cov(u_t, X_t) = 0$; and 5) $u_t \sim N(0, \sigma^2)$" (Brooks, 2008:129-130).

The first assumption requires that the average value of the error term is zero, and this assumption will not be violated if a constant term is included in the regression equation. Under the second assumption, the variance of the error term is required to be constant. This assumption is also named the assumption of homoscedasticity (Brooks, 2008). If the assumption is violated and the variance of the error term is not constant, this phenomenon is known as heteroscedasticity (Brooks, 2008). If the problem of heteroscedasticity is ignored the estimators will no longer be BLUE. Under the third assumption, there should be no covariance between error terms over time (Brooks, 2008). In other words, error terms should not be correlated with each other. If the assumption is violated, this phenomenon is known as auto-correlation or serial correlation (Brooks, 2008). If the issue of auto-correlation is ignored, estimators in the regression model will no longer be BLUE. Under the fourth assumption, to ensure that the parameters are BLUE, the variables are not correlated with the error term (Brooks, 2008). This final assumption requires the error term to be normally distributed (Brooks, 2008).

5.2.3.3. Multicollinearity

Besides the five assumptions discussed above, another issue, which is called multicollinearity, also reduces the effectiveness of using OLS. If the explanatory variables are independent beyond the influence of other explanatory variables, 'they would be said to be orthogonal' (Brooks, 2008:170). Under this circumstance, 'adding or removing a variable from a regression equation would not cause the values of the coefficient of the other variables to change' (Brooks, 2008:170).

Researchers expect there to be no relationship between explanatory variables. In practice, however, the relationship between variables is non-zero. Thus, changing variables will lead to a change in the value of the coefficient of the regression equation. Fortunately, 'this will generally be relatively benign in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision' (Brooks, 2008:171). Gujarati (1999:319) also proposes that under imperfect multicollinearity, 'OLS estimators still remain BLUE even though one or more of the partial regression coefficients in a multiple regression can be individually statistically insignificant'. However, if the correlation between explanatory variables is above the appropriate level, the problem of correlation between explanatory variables will have a serious effect on the regression equation. Multicollinearity is defined as a phenomenon in which 'the explanatory variables are highly correlated with each other' (Brooks, 2008:171).

Multicollinearity can be divided into two categories: perfect multicollinearity and near multicollinearity (Brooks, 2008). Perfect multicollinearity is the phenomenon where there is an exact relationship between two or more

independent variables (Brooks, 2008). Under this circumstance, it is impossible to estimate the parameter of explanatory variables, since these estimators are biased. The consequences of perfect multicollinearity include:

1) large variance and standard error of OLS,

2) wider confidence interval,

3) high R^2, but low t-ratio,

4) the 'OLS estimators and their standard errors become very sensitive to small changes in the data; that is they tend to be unstable' (Brooks, 2008:172).

To detect the potential multicollinearity among variables, a common method useful to multicollinearity detection is the coefficient matrix. Gujarati (1999:323) states that high multicollinearity can be detected through the phenomenon 'high pair-wise correlation among explanatory variables'.

To reduce the influence of multicollinearity, Brooks (2008:173) suggests a number of ways which include:

1) ignore it, if the model is otherwise adequate,

2) drop one of the collinear variables,

3) transform the highly correlated variables into a ratio and include only the ratio and not the individual variables in the regression, for dealing with the existence of multicollinearity.

Besides the solutions of multicollinearity above, Brooks (2008) also states that partial multicollinearity would be caused by the data rather than by the model. Therefore, as the sample increases, the problem of multicollinearity can be reduced.

5.2.4. T-test

Brooks (2008:58) states that 'the significance level is also sometimes called the size of the test and it determines the region where the null hypothesis under test will be rejected or not rejected'. The common significance level in financial research is 5%, which means that 'a result as extreme as this or more extreme would be expected only 5% of the time as a consequence of chance alone' (Brooks, 2008:58). Besides the 5% significance level, 1% and 10% significance are also used as the criteria for null hypotheses rejection. *t*-test is the most popular technique for judging the null hypotheses.

$$t = = \frac{\widehat{\beta} - \beta}{SE\ (\widehat{\beta})}$$

If $\hat{\beta}$ and β have the same value, the |t| value would be zero, in which case the null hypothesis is accepted. If |t| deviates from zero, the incidence of rejection of the null hypothesis also increases. If |t| is higher than the criteria, the null hypothesis is rejected. The aim of this thesis is to test empirically the relationship between the corporate governance mechanism and firm performance, and the relationship between the corporate governance mechanism and information leakage. To reject or accept the testable hypotheses, it is necessary to know the significance level of the parameters of the model.

5.2.5. Panel techniques

In financial research, there are two types of panel estimator approaches that can be employed: fixed effects model and random effects models.

To decide which technique is more suitable for the panel data, the Hausman test is employed. The null hypothesis of the Hausman test is the random effect model is more suitable, and the alternative hypothesis is the fixed effect model is more suitable. The results of the Hausman test obey the chi-square distribution. If it is lower than the critical value, the null hypothesis will be rejected and the fixed effects model will be more suitable for panel data.

5.2.6. Two-stage-least-square (2SLS)

The endogeneity will cause the usual OLS estimation to generate a biased result. Under this circumstance, it is necessary to adopt the instrument variables method (IV), which is also known as two-stage-least-square (2SLS) (Brooks, 2008; Baltagi, 2009; Hill *et al.*, 2011). 'The name comes from the fact that it can be calculated using two least squares regressions' (Hill *et al.*, 2011:455).

5.3. **Regression model**

Firm profitability = α + β₁LNBV + β₂DERATIO + β₃LNTPER + β₄1STPER + β₅SPER + β₆LNTINTPER + β₇LNBSIZE + β₈INDPER + β₉ROLESEP + β₁₀LNSSIZE + β₁₁DUAC + β₁₂DUCC + β₁₃DUNC + β₁₄ DUREFORM + ε

BV: total asset of the listed companies.
DERATIO: the debt over the equity.
TPER: proportions of the tradable shares of the ownership structure of Chinese listed companies.
1STPER: proportions of shareholdings of the largest shareholder.
SPER: the total state ownership.
TINTPER: the proportions of tradable institutional ownership.
BSIZE: the number of directors on the board of Chinese listed companies.
SSIZE: the number of members of the board of supervisors.
INDPER: proportion of independent directors on the board.
ROLESEP: if CEO and Chairman is not the same individual =1, otherwise =0.
DUAC: if the company establish audit committee =1, otherwise=0.
DUCC: if the company establish compensation committee =1, otherwise=0.
DUNC: if the company establish nomination committee =1, otherwise=0.
DUREFORM: if the year is 2004 and 2005 = 1, otherwise = 0.

Table 4-2 shows the correlation between each variable. Thus, the initial regression model will be changed to reduce the influence of multicollinearity on the estimations.

Corporate governance and firm performance

M1: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$1STPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUAC + ϵ*

M2: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$1STPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUCC + ϵ*

M3: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$1STPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUNC + ϵ*

M4: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$SPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUAC + ϵ*

M5: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$SPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUCC + ϵ*

M6: *Firm profitability = α + $β_1$LNBV + $β_2$DERATIO + $β_3$LNTPER + $β_4$SPER + $β_5$LNTINTPER + $β_6$LNBSIZE + $β_7$INDPER + $β_8$ROLESEP + $β_9$LNSSIZE + $β_{10}$DUNC + ϵ*

Firm profitability-ROE/ROA/Tobin's Q

In this thesis, firm profitability is measured by either return on equity (ROE) or return on asset (ROA). One purpose of a corporate governance mechanism is to align corporate managerial activities with the interests of shareholders; this in turn improves firm performance. Thus, the second regression model of this thesis is adopted to analyse the relationship between corporate governance mechanism and firm performance. Due to the unsophisticated capital market in China, market based measure may not be valid to reflect the true performance of Chinese listed companies (Peng, 2004). In China, the average holding period of stock is 1-2 months; this is lower than that in other developed market, such as the US market (Peng, 2004). Under this circumstance, the market based measures 'tend to be less informationally efficient' (Tenev and Zhang, 2002,

cited in Peng, 2004:461). Chang and Wong (2004) also state that noise trading in the emerging market may cause a market-based measurement to be problematic. Secondly, Chinese market participants pay more attention to the accounting measurement rather than the market based measurement(Peng, 2004). However, as the market is developing, especially the elimination of non-tradable shares, the proportion of tradable shares in the total shares that are issued by companies is increasing. Under this circumstance, to ensure the robustness of regression, this thesis uses the market based proxy to measure the firm performance of Chinese listed companies. In this thesis, the Tobin's Q will be employed as a proxy of firm performance of Chinese listed companies. The ratio Tobin's Q was first developed by James Tobin in 1969 (Tobin, 1969). Tobin's Q is a ratio between market value of a company and the replace value of its physical asset. To calculate Tobin's Q of Chinese listed companies, this thesis quotes calculation from Hovey *et al.*(2003). Because of the limited of data on Chinese securities market, Hovey *et al.* (2003) suggests that the total asset can be used as a proxy of replacement value of Chinese listed companies. At the same time, they suggest that the market value of Chinese listed companies is the 'share price multiplied by the number of ordinary shares in issue at year-end' (Hovey *et al.*, 2003:116).

Control variables

Debt-to-Equity ratio (DERATIO)

New projects or investments will generate revenue, thereby increasing the profitability of companies. Companies have to employ various funds to finance new projects and investments. Firstly, companies will prefer to use the internal fund. If the internal fund is inadequate, companies will issue new debt to gather the fund. If the fund from debt financing is still short for the demand of new

projects or investments, companies will prefer to issue the convertible debt or the debt with warrant. The last financing preference of companies is an equity issue. Meyers (1984) define this choosing order of corporate financing as the pecking order theory of capital structure. According to this order, debt financing is one of the most important financing methods of companies.

Capital structure will influence firm profitability, since companies raise funding through various sources to finance their projects and investments. Thus, it is necessary to consider the influence of capital structure on firm performance. Because of the importance of debt financing, it will be set as a control variable in this thesis. In this thesis, the debt-to-equity (D/E) ratio is chosen as a proxy of debt ratio.

Firm Size (LNBV)

Imperfect market competition can lead to large companies having innovation advantages (Acs and Audretsch, 1987), and firm size can thus enhance the productivity growth as a consequence of the innovations (Rochina-Barrachina *et al.*, 2010). Compared with the small companies, the large companies prefer to enlarge their market share via innovation and therefore to increase their firm performance (Vaona and Pianta, 2008). Thus, the second control variable of this thesis is firm size. Empirical results will be presented in the following section.

2SLS for ROE and Tobin's Q

The Tobin's Q is a market oriented proxy of firm performance. It will be influenced by the accounting based proxy of firm performance, since investors will use the accounting based measure to decide on their investment. Thus, it is

necessary to include an accounting based proxy of firm performance in the regression of Tobin's Q. In this thesis, the ROE is employed as an independent variable in the regression of Tobin's Q, and the regression of Tobin's Q is estimated by the 2-stage-least-sqaure (2SLS).

5.4.   Empirical results

To ensure the robustness of the results, this thesis use three proxies to measure performance of Chinese listed companies. They are return on equity (ROE), return on asset (ROA), and Tobin's Q.

Figures of table 5-1 reflect the relationship between the corporate governance mechanism and firm performance that is measured by the ROE in the full sample. The proportions of institutional ownership (LNTINTPER) in a company's ownership structure have a positive effect on ROE. However, the proportions of tradable shares (LNTPER) in a company's ownership structure have a negative effect on ROE. In the company separate CEO from the chairman of a board of directors (ROLESEP), this leadership structure has a positive effect on ROE. The audit committee (DUAC) has a positive effect on ROE in the full sample. However, the compensation committee (DUCC) and the nomination committee (DUNC) do not affect ROE in the full sample. The dummy variable of market reform (DUREFORM) has a negative effect on ROE. In other words, this means that the ROE in the post-reform period is better than that in the pre-reform period. The firm size (LNBV) and leverage (DERATIO) do not affect ROE in the full sample. The ownership concentration (1STPER), the state ownership (SPER), the size of a board of directors (LNBSIZE), board independence (INDPER), and the size of a board of supervisors (LNSSIZE) do not affect ROE in the full sample.

139

Figures of table 5-2 reflect the relationship between corporate governance and firm performance, which is measured by ROA, in the full sample. The firm size (LNBV) and the leverage (DERATIO) have a negative effect on ROA in the full sample. Ownership concentration (1STPER) and the state ownership (SPER) do not affect ROA in the full sample. The percentage of institutional ownership (LNTINTPER) in the ownership structure of a company has a positive effect on ROA. However, the percentage of tradable shares (LNTPER) in the ownership structure of a company has a negative effect on ROA. Board subcommittees (DUAC, DUCC, and DUNC) have positive effects on ROA in the full sample. The dummy variable of market reform (DUREFORM) has a negative effect on ROA in the full sample. In the other words, the pre-reform ROA is lower than that of post-reform. This is similar to that of table 5-1. Variables of the board of directors (LNBSIZE, INDPER, and ROLESEP) and the board of supervisors (LNSSIZE) do not affect ROA in the full sample.

Table 5-1 corporate governance and firm performance (ROE) in Chinese listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

M4:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

M5:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

M6: FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + ε

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3	M4	M5	M6
Firm size	-0.074	-0.065	-0.04	-0.073	-0.064	-0.039
	(-1.693)*	(-1.491)	(-0.917)	(-1.677)*	(-1.471)	(-0.896)
Leverage (debt to equity)	0.001	0.001	0.001	0.001	0.001	0.001
	(0.325)	(0.306)	(0.288)	(0.325)	(0.306)	(0.286)
Ownership concentration	0.143	0.151	0.161			
	(0.580)	(0.613)	(0.653)			
State ownership				0.071	0.071	0.069
				(0.382)	(0.378)	(0.366)
institutional ownership	0.110	0.111	0.113	0.111	0.111	0.113
	(8.792)***	(8.837)***	(8.972)***	(8.814)***	(8.861)***	(8.994)***
tradable shares	-0.408	-0.391	-0.350	-0.416	-0.400	-0.360
	(-5.407)***	(-5.224)***	(-4.695)***	(-5.677)***	(-5.494)***	(-4.976)***
Size of BOD	-0.065	-0.071	-0.075	-0.067	-0.073	-0.078
	(-0.446)	(-0.487)	(-0.518)	(-0.464)	(-0.507)	(-0.540)
Independence of BOD	-0.141	-0.113	-0.050	-0.139	-0.110	-0.047
	(-0.345)	(-0.276)	(-0.122)	(-0.339)	(-0.269)	(-0.115)
Leadership of BOD	-0.170	-0.171	-0.174	-0.169	-0.170	-0.173
	(-2.295)**	(-2.309)**	(-2.349)**	(-2.284)**	(-2.297)**	(-2.337)**
Audit committee	0.081			0.082		
	(2.224)**			(2.240)**		
Compensation committee		0.058			0.059	
		(1.587)			(1.596)	
Nomination committee			-0.027			-0.026
			(-0.672)			(-0.650)
Size of BOS	-0.034	-0.037	-0.047	-0.037	-0.041	-0.050
	(-0.292)	(-0.323)	(-0.406)	(-0.320)	(-0.352)	(-0.435)
Market reform	-0.159	-0.162	-0.173	-0.156	-0.160	-0.170
	(-4.201)***	(-4.307)***	(-4.610)***	(-4.152)***	(-4.247)***	(-4.537)***
C	-1.250	-1.351	-1.640	-1.226	-1.327	-1.611
	(-1.706)*	(-1.848)*	(-2.243)**	(-1.678)*	(-1.819)*	(-2.209)**
R²	0.66	0.66	0.66	0.66	0.66	0.66
Adj. R²	0.53	0.53	0.53	0.53	0.53	0.53

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 5-2 corporate governance and firm performance (ROA) in Chinese listed companies

M1: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M2: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M3: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M4:FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M5:FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M6: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA

	M1	M2	M3	M4	M5	M6
Firm size	-0.585	-0.570	-0.544	-0.583	-0.568	-0.541
	(-14.750)***	(-14.391)***	(-13.685)***	(-14.756)***	(-14.390)***	(-13.679)***
Leverage (debt to equity)	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
	(-2.648)***	(-2.691)***	(-2.701)***	(-2.620)***	(-2.664)***	(-2.675)***
Ownership concentration	0.229	0.252	0.248			
	(0.870)	(0.956)	(0.937)			
State ownership				0.238	0.239	0.232
				(1.200)	(1.201)	(1.1573)
institutional ownership	0.111	0.113	0.116	0.112	0.114	0.117
	(8.250)***	(8.326)***	(8.564)***	(8.3235)***	(8.402)***	(8.637)***
tradable shares	-0.552	-0.513	-0.448	-0.556	-0.519	-0.454
	(-6.823)***	(-6.364)***	(-5.567)***	(-7.090)***	(6.637)***	(-5.825)***
Size of BOD	0.043	0.025	0.015	0.042	0.023	0.013
	(0.279)	(0.160)	(0.094)	(0.272)	(0.148)	(0.082)
Independence of BOD	0.164	0.235	0.352	0.170	0.242	0.359
	(0.373)	(0.535)	(0.798)	(0.387)	(0.551)	(0.814)
Leadership of BOD	-0.136	-0.139	-0.145	-0.134	-0.137	-0.143
	(-1.714)	(-1.738)	(-1.806)	(-1.690)*	(-1.713)*	(-1.781)*
Audit committee	0.269			0.270		
	(6.957)***			(6.981)***		
Compensation committee		0.223			0.224	
		(5.710)***			(5.726)***	
Nomination committee			0.110			0.111
			(2.607)***			(2.628)***
Size of BOS	-0.022	-0.032	-0.044	-0.029	-0.039	-0.052
	(-0.177)	(-0.253)	(-0.355)	(-0.23)	(-0.312)	(-0.412)
Market reform	-0.245	-0.256	-0.285	-0.248	-0.258	-0.286
	(-6.150)***	(-6.418)***	(-7.181)***	(-6.248)***	(-6.494)***	(-7.256)***
C	4.844	4.705	4.470	4.832	4.696	4.463
	(6.974)***	(6.763)***	(6.391)***	(6.960)***	(6.753)***	(6.383)***
R^2	0.64	0.64	0.64	0.64	0.64	0.64
Adj. R^2	0.51	0.51	0.51	0.51	0.51	0.51

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Figures of table 5-3 describe the relationship between the corporate governance mechanism and firm performance, which is measured by the Tobin's Q, in the full sample. ROE has a positive effect on the Tobin's Q. the firm size (LNBV) has a negative effect on Tobin's Q. Ownership concentration (1STPER) and state ownership (SPER) do not affect Tobin's Q in the full sample. The percentage of institutional ownership (LNTINTPER) in a company's ownership structure has a positive effect on its Tobin's Q. However, the percentage of tradable shares (LNTPER) in a company's ownership structure has a negative effect on its Tobin's Q. Board subcommittees (DIUAC, DUC, and DUNC) have a positive effect on Tobin's Q in the full sample. The dummy variable of market reform (DUREFOM) has a negative effect on Tobin's Q. This means that the Tobin's Q in the pre-reform period is lower than that in the post-reform period. This is similar to that of the other two tables. Like table 5-2, variables of the board of directors (LNBSIZE, INDPER, and ROESEP) and the board of supervisors (LNSSIZE) do not matter to Tobin's Q in the full sample.

Figures of the table 5-4 reflect the relationship between the corporate governance mechanism and firm performance, which is measured by ROE, in the sample of state owned listed companies. Proportions of the institutional ownership (LNTINTPER) have a positive effect on ROE of state owned listed companies. However, there is a negative relationship between the proportions of the tradable shares (LNTPER) and ROE of state owned listed companies.

Table 5-3 corporate governance and firm performance (Tobin's Q) in Chinese listed companies

M1: FIRM PERFORMANCE = α + β₁ROE+ β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M4:FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M5:FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M6: FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q

	M1	M2	M3	M4	M5	M6
ROE	0.084	0.084	0.085	0.084	0.085	0.086
	(2.050)**	(2.057)**	(2.056)**	(2.051)**	(2.059)**	(2.059)**
Firm size	-0.371	-0.360	(0.334)	-0.370	-0.359	-0.333
	(-19.215)***	(-18.616)***	(-17.182)***	(-19.235)***	(-18.627)***	(-17.185)***
Ownership concentration	0.028	0.043	0.034			
	(0.247)	(0.376)	(0.294)			
State ownership				-0.018	-0.017	-0.034
				(-0.217)	(-0.202)	(-0.416)
institutional ownership	0.060	0.061	0.063	0.060	0.061	0.063
	(10.189)***	(10.302)***	(10.682)***	(10.183)***	(10.301)***	(10.668)***
tradable shares	-0.391	-0.366	-0.312	-0.395	-0.372	-0.319
	(-10.832)***	(-10.139)***	(-8.615)***	(-11.274)***	(-10.593)***	(-9.0601)***
Size of BOD	0.098	0.087	0.076	0.096	0.085	0.073
	(1.472)	(1.298)	(1.1205)	91.445)	(1.264)	(1.080)
Independence of BOD	0.170	0.215	0.305	0.170	0.216	0.305
	(0.9070)	(1.148)	(1.607)	(0.908)	(1.150)	(1.607)
Leadership of BOD	0.014	0.013	0.009	0.014	0.013	0.009
	(0.406)	(0.375)	(0.251)	(0.408)	(0.376)	(0.2540)
Audit committee	0.196			0.196		
	(11.545)***			(11.543)***		
Compensation committee		0.168			0.168	
		(9.745)***			(9.739)***	
Nomination committee			0.080			0.080
			(4.283)***			(4.294)***
Size of BOS	0.062	0.052	0.040	0.062	0.052	0.041
	(1.169)	(0.977)	(0.748)	(1.169)	(0.972)	(0.754)
Market reform	-0.414	-0.421	-0.442	-0.412	-0.419	-0.439
	(-23.492)***	(-23.830)***	(-24.893)***	(-23.498)***	(-23.801)***	(-24.837)***
C	5.554	5.449	5.199	5.563	5.461	5.213
	(17.060)***	(16.663)***	(15.732)***	(17.105)***	(16.714)***	(15.792)***
R²	0.64	0.64	0.63	0.64	0.64	0.63
Adj. R²	0.53	0.52	0.51	0.53	0.52	0.51

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 5-4 corporate governance and firm performance (ROE) in state owned listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M4:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M5:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M6: FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3	M4	M5	M6
Firm size	-0.075	-0.065	-0.047	-0.079	-0.069	-0.052
	(-1.505)	(-1.306)	(-0.963)	(-1.586)	(-1.385)	(-1.046)
Leverage (debt to equity)	-0.001	-0.001	-0.002	-0.001	-0.001	-0.002
	(-0.3123)	(-0.329)	(-0.351)	(-0.311)	(-0.328)	(-0.351)
Ownership concentration	0.350	0.351	0.353			
	(1.208)	(1.212)	(1.217)			
State ownership				0.404	0.403	0.400
				(1.3870	(1.384)	(1.374)
institutional ownership	0.094	0.094	0.094	0.095	0.095	0.095
	(6.657)***	(6.688)***	(6.728)***	(6.717)***	(6.748)***	(6.787)***
tradable shares	-0.292	-0.275	-0.250	-0.279	-0.262	-0.237
	(-3.35)***	(-3.191)***	(-2.900)***	(-3.126)***	(2.960)***	(-2.685)***
Size of BOD	-0.034	-0.036	-0.036	-0.031	-0.032	-0.033
	(-0.206)	(-0.215)	(-0.217)	(-0.183)	(-0.193)	(-0.195)
Independence of BOD	-0.299	-0.268	-0.226	-0.293	-0.261	-0.220
	(-0.648)	(-0.582)	(-0.491)	(-0.634)	(-0.567)	(-0.4779)
Leadership of BOD	-0.201	-0.203	-0.206	-0.199	-0.200	-0.203
	(-2.032)**	(-2.048)**	(-2.077)**	(-2.008)**	(-2.024)**	(-2.052)**
Audit committee	0.041			0.042		
	(1.011)			(1.022)		
Compensation committee		0.014			0.014	
		(0.334)			(0.339)	
Nomination committee			-0.043			-0.043
			(-0.973)			(-0.955)
Size of BOS	-0.009	-0.012	-0.019	-0.017	-0.021	-0.027
	(-0.068)	(-0.097)	(-0.148)	(-0.134)	(-0.163)	(-0.214)
Market reform	-0.174	-0.178	-0.181	-0.178	-0.181	-0.184
	(-3.955)	(-4.025)	(-4.126)***	(-4.018)***	(-4.084)***	(-4.180)***
C	-1.292	-1.414	-1.626	-1.256	-1.378	-1.588
	(-1.537)	(-1.685)*	(-1.940)**	(1.497)	(-1.646)	(-1.899)
R²	0.68	0.68	0.68	0.68	0.68	0.68
Adj. R²	0.56	0.56	0.56	0.56	0.56	0.56

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

There is a negative relationship between the role separation (ROELSEP) and ROE in the state owned listed companies. After market reform (DUREFORM), companies perform better in the market. Firm size (LNBV), the leverage (DERATIO), ownership concentration (STPER), state ownership (SPER), the size of a board of directors (LNBSIZE), board independence (INDPER), board subcommittees (DUAC, DUCC, and DUNC), and the size of a board of supervisors do not affect ROE in the state owned listed companies.

The relationship between the corporate governance mechanism and ROA in state owned listed companies is described by figures of table 5-5. The firm size (LNBV) and the leverage (DERATIO) have a negative effect on ROA in state owned listed companies. However, the negative effect of leverage on ROA is significant at the 10% significance level. Ownership concentration (1STPER) has a positive effect on ROA at the 10% significance level. State ownership (SPER) has an insignificant effect on ROA in this sample. Proportions of the institutional ownership (LNTINTPER) have a positive effect on ROA. However, proportions of the tradable shares have a negative effect on ROA. The size of a board of directors (LNBSIZE) and board independence (INDPER) do not affect ROA in state owned listed companies. Role separation (ROLESEP) has a negative effect on ROA. However, it is significant at the 10% significance level. The audit committee (DUAC) has a positive effect on ROA in this sample. However, the other two subcommittees (compensation committee-DUCC and nomination committee-DUNC) do not affect ROA in this sample. The size of a board of supervisors (LNSSIZE) does not affect ROA in state owned listed companies. Finally, the dummy variable of market reform (DUREFORM) has a negative effect on ROA in this sample. This means that market reform increases ROA in state owned listed companies.

146

Figures of table 5-6 reflect the relationship between corporate governance mechanism and Tobin's Q in state owned listed companies. ROE has a positive effect on Tobin's Q in state owned listed companies. Firm size (LNBV), proportions of institutional ownership (LNTINPTER), and board subcommittees (DUAC, DUCC, and DUNC) have a positive effect on Tobin's Q in state owned listed companies. Proportions of tradable shares (LNTPER) have a negative effect on Tobin's Q in this sample. The dummy variable of reform (DUREFORM) has a negative effect on Tobin's Q. This means that the Tobin's Q post-reform is better than that of pre-reform. Other variables (1STER, SPER, LNBSIZE, INDPER ROLESEP, and LNSSIZE) do not affect Tobin's Q in state owned listed companies.

The relationship between the corporate governance mechanism and firm performance in private listed companies, which is measured by ROE, is described by figures from Table 5-7. Firstly, there is a negative relationship between firm size (LNBV) and ROE in this table. Leverage (DERATIO) and ownership concentration (1STPER) do not affect ROE in private listed companies. State ownership (SPER) has a positive effect on ROE in private listed companies. However, this positive effect in not very strong, since the significance level is 10%. Institutional ownership (LNTINTPER) has a positive effect on the ROE of private listed companies. However, more tradable shares (LNTPER) in the ownership structure of private listed companies will decrease the ROE. The audit committee (DUAC) and the compensation committee (DUCC) have a positive effect on ROE of private listed companies. Variables of the board of directors and the board of supervisors (LNBSIZE, INDPER, ROLESEP, and LNSSIZE) do not affect ROE of private listed companies. The

factor of market reform (DUREFORM) also does not affect ROE in private listed companies.

Figures of table 5-8 reflect the effect of the corporate governance mechanism of private listed companies on their ROA. Firstly, firm size (LNBV) and leverage (DERATIO) have a negative effect on ROA of private listed companies. Ownership concentration and state ownership (1STPER and SPER) are factors in affecting ROA. Like other tables LNTINTPER (LNTPER) has a positive (negative) effect on ROA of private listed companies. Board subcommittees (DUAC, DUCC, and DUNC) have positive effects on ROA of private listed companies. The factor of market reform (DUREFORM) has a negative effect on ROA. This means that ROA of private listed companies in the post-reform period is better than that in the pre-reform period. Variables of the board of directors and the board of supervisors (LNBSIZE, INDPER, ROLESEP, and LNSSIZE) do not affect ROA of private listed companies.

Table 5-5 corporate governance and firm performance (ROA) in state owned listed companies

M1: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M4:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M5:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA

	M1	M2	M3	M4	M5	M6
Firm size	-0.310	-0.293	-0.266	-0.313	-0.296	-0.269
	(-5.857)***	(-5.554)***	(-5.067)***	(-5.883)***	(-5.577)***	(-5.095)***
Leverage (debt to equity)	-0.009	-0.009	-0.009	-0.009	-0.009	-0.009
	(-1.862)*	(-1.892)*	(-1.922)*	(-1.863)*	(-1.894)*	(-1.923)*
Ownership concentration	0.527	0.531	0.528			
	(1.702)*	(1.716)*	(1.704)*			
State ownership				0.479	0.478	0.472
				(1.530)	(1.528)	(1.508)
institutional ownership	0.099	0.100	0.101	0.100	0.101	0.102
	(6.530)***	(6.576)***	(6.640)***	(6.597)***	(6.643)***	(6.705)***
tradable shares	-0.372	-0.341	-0.301	-0.366	-0.336	-0.297
	(-3.971)***	(-3.674)***	(-3.251)***	(-3.817)***	(-3.526)***	(-3.123)***
Size of BOD	0.088	0.086	0.083	0.091	0.089	0.086
	(0.493)	(0.470)	(0.462)	(0.510)	(0.495)	(0.478)
Independence of BOD	-0.228	-0.171	-0.103	-0.216	-0.159	-0.092
	(-0.458)	(-0.344)	(-0.206)	(-0.435)	(-0.320)	(-0.184)
Leadership of BOD	-0.198	-0.202	-0.205	-0.194	-0.197	-0.200
	(-1.857)*	(-1.889)*	(-1.915)*	(-1.815)*	(-1.846)*	(-1.872)*
Audit committee	0.108			0.108		
	(2.437)**			(2.448)**		
Compensation committee		0.063			0.063	
		(1.415)			(1.416)	
Nomination committee			0.021			-0.020
			(-0.433)			(-0.410)
Size of BOS	0.092	0.085	0.076	0.079	0.072	0.063
	(0.680)	(0.630)	(0.562)	(0.585)	(0.533)	(0.467)
Market reform	-0.194	-0.199	-0.208	-0.192	-0.197	-0.205
	(-4.118)***	(-4.222)***	(-4.418)***	(-4.060)***	(-4.159)***	(-4.350)***
C	0.790	0.585	0.261	0.844	0.637	0.317
	(0.883)	(0.654)	(0.292)	(0.944)	(0.714)	(0.355)
R^2	0.68	0.68	0.68	0.68	0.68	0.68
Adj. R^2	0.56	0.56	0.56	0.56	0.56	0.56

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Table 5-6 corporate governance and firm performance (Tobin's Q) in state owned listed companies

M1: FIRM PERFORMANCE = $\alpha + \beta_1$ROE+ β_2 LNBV + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: FIRM PERFORMANCE = $\alpha + \beta_1$LNBV + β_2 LNBV + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: FIRM PERFORMANCE = $\alpha + \beta_1$ ROE + β_2 LNBV + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M4:FIRM PERFORMANCE = $\alpha + \beta_1$ ROE + β_2 LNBV + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M5:FIRM PERFORMANCE = $\alpha + \beta_1$ ROE + β_2 LNBV + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: FIRM PERFORMANCE = $\alpha + \beta_1$ ROE + β_2 LNBV + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q

	M1	M2	M3	M4	M5	M6
ROE	0.169	0.170	0.175	0.170	0.172	0.178
	(2.404)**	(2.417)**	(2.460)**	(2.434)**	(2.451)**	(2.501)**
Firm size	-0.236	-0.233	-0.228	-0.236	-0.232	-0.227
	(-23.078)***	(-22.810)***	(-22.322)***	(-23.083)***	(-22.814)***	(-22.341)***
Ownership concentration	0.069	0.081	0.093			
	(0.911)	(1.073)	(1.227)			
State ownership				0.067	0.082	0.108
				(0.823)	(1.008)	(1.334)
institutional ownership	0.083	0.083	0.085	0.083	0.084	0.085
	(14.878)***	(14.933)***	(15.080)***	(14.875)***	(14.939)***	(15.097)***
tradable shares	-0.351	-0.338	-0.314	-0.348	-0.334	-0.306
	(-10.651)***	(-10.245)***	(-9.479)***	(-9.814)***	(-9.396)***	(-8.558)***
Size of BOD	0.079	0.077	0.072	0.077	0.075	0.069
	(1.597)	(1.563)	(1.447)	(1.557)	(1.517)	(1.404)
Independence of BOD	-0.057	-0.037	0.011	-0.056	-0.035	0.013
	(-0.320)	(-0.207)	(0.060)	(-0.312)	(-0.198)	(0.071)
Leadership of BOD	-0.035	-0.037	-0.039	-0.035	-0.037	-0.039
	(-1.067)	(-1.123)	(-1.171)	(-1.063)	(-1.121)	(-1.1803)
Audit committee	0.139			0.139		
	(8.046)***			(8.016)***		
Compensation committee		0.113			0.113	
		(6.621)***			(6.582)***	
Nomination committee			0.045			0.044
			(2.534)**			(2.484)**
Size of BOS	0.046	0.044	0.043	0.045	0.041	0.041
	(1.480)	(1.389)	(1.374)	(1.418)	(1.315)	(1.283)
Market reform	-0.357	-0.368	-0.393	-0.356	-0.367	-0.392
	(-20.179)***	(-20.909)***	(-22.850)***	(-20.212)***	(-20.926)***	(-22.856)***
C	3.874	3.853	3.844	3.875	3.853	3.843
	(21.374)***	(21.209)***	(21.093)***	(21.322)***	(21.155)***	(21.035)***
R^2	0.26	0.26	0.25	0.26	0.26	0.25
Adj. R^2	0.26	0.26	0.25	0.26	0.26	0.25

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 5-7 corporate governance and firm performance (ROE) in private listed companies

M1: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +β4SPER + $β_5$LNTINTPER + $β_6$ LNTPER +$β_7$LNBSIZE +$β_8$ INDPER + $β_9$ ROLESE P +$β_{10}$DUAC + $β_{11}$LNSSIZE + $β_{12}$DUREFORM +C

M2: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +β4SPER + $β_5$LNTINTPER + $β_6$ LNTPER +$β_7$LNBSIZE +$β_8$ INDPER + $β_9$ ROLESE P +$β_{10}$DUCC + $β_{11}$LNSSIZE + $β_{12}$DUREFORM +C

M3: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +β4SPER + $β_5$LNTINTPER + $β_6$ LNTPER +$β_7$LNBSIZE +$β_8$ INDPER + $β_9$ ROLESE P +$β_{10}$DUNC + $β_{11}$LNSSIZE + $β_{12}$DUREFORM +C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3
Firm size	-0.271	-0.273	-0.207
	(-2.573)**	(-2.593)***	(-1.985)**
Leverage (debt to equity)	0.017	0.017	0.019
	(1.369)	(1.337)	(1.473)
Ownership concentration	-0.521	-0.495	-0.479
	(-0.919)	(-0.872)	(-0.841)
State ownership	1.015	1.014	0.962
	(1.649)*	(1.648)*	(1.559)
institutional ownership	0.147	0.146	0.153
	(5.389)***	(5.347)***	(5.606)***
tradable shares	-0.607	-0.599	-0.501
	(-3.761)***	(-3.749)***	(-3.139)***
Size of BOD	-0.031	-0.061	-0.068
	(-0.106)	(-0.206)	(-0.231)
Independence of BOD	0.845	0.880	0.941
	(0.966)	(1.006)	(1.071)
Leadership of BOD	-0.120	-0.115	-0.125
	(-0.991)	(-0.957)	(-1.035)
Audit committee	0.182		
	(2.361)**		
Compensation committee		0.194	
		(2.475)**	
Nomination committee			0.012
			(0.139)
Size of BOS	0.150	0.151	0.112
	(0.552)	(0.556)	(0.410)
Market reform	-0.110	-0.112	-0.134
	(-1.400)	(-1.434)	(-1.716)
C	0.957	1.010	0.308
	(0.577)	(0.609)	(0.186)
R²	0.67	0.67	0.67
Adj. R²	0.52	0.52	0.52

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Table 5-8 corporate governance and firm performance (ROA) in private listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUAC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUCC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUNC + β₁₁LNSSIZE + β₁₂DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA			
	M1	M2	M3
Firm size	-1.030	-1.023	-1.005
	(-14.468)***	(-14.351)***	(-13.877)***
Leverage (debt to equity)	-0.011	-0.012	-0.011
	(-1.988)**	(-2.022)**	(-1.966)**
Ownership concentration	-0.515	-0.444	-0.436
	(-0.903)	(-0.776)	(-0.751)
State ownership	0.971	0.958	0.863
	(1.545)	(1.520)	(1.351)
institutional ownership	0.141	0.139	0.153
	(5.069)***	(4.997)***	(5.442)***
tradable shares	-0.681	-0.630	-0.511
	(-4.131)***	(-3.846)***	(-3.088)***
Size of BOD	0.080	-0.004	-0.019
	(0.276)	(-0.012)	(-0.062)
Independence of BOD	1.235	1.315	1.398
	(1.409)	(1.497)	(1.568)
Leadership of BOD	-0.060	-0.051	-0.070
	(-0.479)	(-0.408)	(-0.552)
Audit committee	0.493		
	(6.434)***		
Compensation committee		0.475	
		(6.083)***	
Nomination committee			0.288
			(3.394)***
Size of BOS	-0.025	-0.034	-0.058
	(-0.090)	(-0.121)	(-0.204)
Market reform	-0.189	-0.204	-0.260
	(-2.422)***	(-2.608)***	(-3.316)***
C	10.605	10.674	10.753
	(8.479)***	(8.512)***	(8.443)***
R²	0.66	0.66	0.65
Adj. R²	0.50	0.49	0.48

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

The table 5-9 reports the relationship between corporate governance mechanism and Tobin's Q in private listed companies. ROE does not affect Tobin's Q in private listed companies. The firm size (LNBV) has a negative effect on Tobin's Q in private listed companies. Ownership concentration and state ownership (1STPER and SPER) have insignificant effects on Tobin's Q in private listed companies. Proportions of institutional ownership (LNTINTPER) in the ownership structure have a positive effect on Tobin's Q. Proportions of tradable shares (LNTPER) in the ownership structure have a negative effect on Tobin's Q of private listed companies. The audit committee and the compensation committee (DUAC and DUCC) have positive effects on Tobin's Q of private listed companies. However, the nomination committee (DUNC) does not affect Tobin's Q of private listed companies. The dummy variable of market reform (DUREFORM) has a negative effect on Tobin's Q, which means that the Tobin's Q of private listed companies in the pre-reform period is lower than that in the post-reform period. Although board independence has a positive effect on Tobin's Q, the significance level is only 10%. Other variables of the board of directors and the board of supervisors (LNBSIZE, ROLESEP, and LNSSIZE) do not affect Tobin's Q in private listed companies.

Generally, firm size and leverage (LNBV and DERATIO) will not affect ROE, but have negative effects on ROA and Tobin's Q. Ownership concentration and state ownership (1STPER and SPER) do not affect the three proxies of firm performance. Institutional ownership (LNTINTPER) is a factor in improving firm performance. Greater proportions of tradable shares (LNTPER) will decrease firm performance. The board of directors (LNBSIZE, INDPER, and ROLESEP) does not affect firm performance. Although the role separation has a negative effect on ROE in table 5-1 and table 5-4, and board independence

has a positive effect on Tobin's Q in table 5-9, the board of directors does not affect firm performance in general. Board subcommittees have a positive effect on firm performance. Like the board of directors, the board of supervisors also does not affect firm performance of Chinese listed companies. The dummy of market reform has a negative effect on firm performance. In other words, this means that market reform increases firm performance of Chinese listed companies.

Table 5-9 corporate governance and firm performance (Tobin's Q) in private listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROE + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUAC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROEO + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUCC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROE + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUNC + β₁₁LNSSIZE + β₁₂DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that if there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO is separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q

	M1	M2	M3
ROE	0.012	0.011	0.012
	(0.459)	(0.415)	(0.427)
Firm size	-0.360	-0.350	-0.314
	(-8.471)***	(-8.213)***	(-7.355)***
Ownership concentration	0.122	0.152	0.177
	(0.498)	(0.616)	(0.709)
State ownership	-0.079	-0.084	-0.126
	(-0.286)	(-0.306)	(-0.454)
institutional ownership	0.052	0.052	0.058
	(4.3257)***	(4.351)***	(4.807)***
tradable shares	-0.394	-0.366	-0.291
	(-5.517)***	(-5.137)***	(-4.074)***
Size of BOD	0.156	0.130	0.123
	(1.225)	(1.018)	(0.951)
Independence of BOD	0.630	0.688	0.742
	(1.651)*	(1.798)*	(1.917)*
Leadership of BOD	0.002	0.004	-0.005
	(0.028)	(0.077)	(-0.084)
Audit committee	0.191		
	(5.627)***		
Compensation committee		0.164	
		(4.752)***	
Nomination committee			0.039
			(1.042)
Size of BOS	0.028	0.015	-0.017
	(0.238)	(0.131)	(-0.141)
Market reform	-0.428	-0.435	-0.456
	(-12.585)***	(-12.795)***	(-13.345)***
C	5.067	4.998	4.669
	(7.603)***	(7.463)***	(6.913)***
R²	0.68	0.68	0.67
Adj. R²	0.55	0.54	0.53

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

5.5. Discussion and interpretation

The purpose of this section is to discuss and interpret the empirical results presented in section 5.4.

5.5.1. Firm size, leverage and firm performance

Balasubramanian *et al.* (2010) state that in an emerging market, firm size is a factor that increases the quality of corporate governance. Previous studies also indicate that firm size will help companies gain innovation advantages in an emerging market (Acs and Audretsch, 1987; Vaona and Pianta, 2008; Rochina-Barrachina *et al.*, 2010). Thus, there should be a positive relationship between firm size and firm performance in Chinese listed companies. Appropriate leverage of companies will help them to increase firm performance, since debt financing will support the operation of companies, thereby increasing firm performance. However, empirical results of section 5.4 indicate that firm size (LNBV) and debt-to-equity ratio (DERATIO) do not affect firm performance (ROE) of Chinese listed companies or have negative effects on firm performance (ROA/Q).

Firm size may help Chinese listed companies to increase the quality of the corporate governance mechanism in their companies. A good corporate governance mechanism is costly. Thus, only large companies are able to afford the cost of building a good corporate governance mechanism. Chinese market is not a sophisticated market, thus, firm size may help companies to gain the competitive advantages, such as innovation, financing, and human resource. Thus, firm size is a factor in improving firm performance (ROE). However, in some Chinese listed companies firm size may reduce firm performance. In

some Chinese listed companies the problem of 'insider control' is very serious, and it will be exacerbated in the large companies (Li *et al.*, 2005; Cornett, 2007). Under this circumstance, firm size will decrease the quality of corporate governance mechanism, thereby lowering firm performance (ROE). Thus, firm size will have an insignificant effect on firm performance (ROE) in general term.

Additionally, empirical results (table 5-2, table 5-3, table 5-5, table 5-6, table 5-8 and table 5-9) indicate that firm size (LNBV) has negative effects on return on asset (ROA) and Tobin's Q (Q) in the Chinese listed companies.

In the Chinese market, the large companies will have a higher debt ratio (Chen, 2004; Huang and Song, 2006; Chen, 2009; Chen, 2010). circumstance, they will have more debt in their capital structure. In other words, the proportions of equity in the capital structure of Chinese listed companies will decrease as the firm size increases. As a result, the debt asset will disperse the profitability of Chinese listed companies if it is measured by the return on asset (ROA) (Xu *et al.*, 2009). Hovey (2007) also indicates that the ROA is negatively correlated with the leverage of the Chinese listed companies. Thus, there is a negative relationship between firm size and return on asset in the Chinese listed companies. In this thesis, firm size is measured by total asset of listed companies. Because the proxy of replacement value is the value of companies' total asset, large listed companies will have a higher replacement value, or in other words, those companies will have a larger denominator in the formula of Tobin's Q. This will lower the value of Tobin's Q of large listed companies. Additionally, the negative relationship between firm size and Tobin's Q may indicate that Chinese investors recognise the lumbering nature of some large listed SOEs (Hovey, *et al.*, 2003).

The insignificant (negative) relationship between debt-to-equity ratio and return on equity (return on asset) indicates that debt financing cannot help Chinese listed companies to increase firm performance in general term or that it lowers firm performance of Chinese listed companies. Fan and Ye (2004) indicate that the majority of debtors of Chinese listed companies are state owned banks and they are less inclined to monitor listed companies. Under this circumstance, debtors of Chinese listed companies cannot motivate them to increase firm performance. Thus, the leverage of listed companies does not affect their performance, and this is the reason that there is a negative relationship between DERATIO and ROA.

5.5.2. Ownership structure and firm performance

The empirical results of section 5.2 indicate that ownership structure significantly affects firm performance of the Chinese listed companies. Thus, in discussing the effect of the corporate governance mechanism on firm performance of the Chinese companies, their ownership structure must be considered. This section will discuss the effect on firm performance in the Chinese market of 1) the proportion of tradable shares, 2) state ownership, 3) ownership concentration and 4) institutional share ownership.

5.5.2.1. Tradable shares and firm performance

Tomasic and Jian (2006), and Wei and Geng (2008) point out that non-tradable shares made the market mechanism incapable of influencing Chinese listed companies. Thus the regulatory agency in the Chinese market decided to reduce the proportion of non-tradable shares. The empirical results of section

5.2 reject the hypothesis that there is a positive relationship between the proportion of tradable shares (LNTPER) and firm performance of Chinese listed companies, since it shows there is a negative relationship between them. The purpose of the elimination of non-tradable shares is to reduce the negative effect of stock segmentation on firm performance of Chinese listed companies. Stock segmentation is a historical problem in the Chinese market and has been criticized by its participants for a long time. However, the empirical results in this section (tables 5-1 to 5-9) indicate that the reduction of non-tradable shares has a negative effect on firm performance of Chinese listed companies. One possible reason for this is that although the elimination of non-tradable shares increases market liquidity in the Chinese securities market and disperses company ownership, it also exacerbates the problem of free-riders in that market. Under a dispersed ownership structure, the majority of shareholders are unable to monitor the managerial activities of executives. Hansmann and Kraakman (2004) find that a dispersed ownership structure will exacerbate the conflict of interest between executives and shareholders, since the owners are unable to monitor the executives. Under this circumstance, the problem of free-riders means that executives are less monitored by the shareholders.

The elimination of non-tradable shares attracts more investors to join the Chinese securities market. The majority of Chinese investors are individual and small investors (Zhang *et al.*, 2010), and they are less concerned about the quality of corporate governance of Chinese listed companies. As a result, these new investors lack the ability to monitor the companies and drive the managerial team to align managerial activities with the interest of the company. Additionally, the elimination of non-tradable shares motivates the holders of non-tradable shares to sell their shares in the market. Because of the original

price gap between non-tradable and tradable shares (Zhang, 2009b), holders of non-tradable shares will gain more profit from the market if there is no trading restriction. Under this circumstance, the elimination of non-tradable shares gives these shareholders an opportunity to receive a price premium between non-tradable and tradable shares. These shareholders are less likely to pay attention to the managerial teams of listed companies, so the executives will not be monitored by the shareholders. Thus, the elimination of non-tradable shares will exacerbate the conflict of interest between shareholders and the managerial team, thereby increasing agency cost. Therefore, it cannot be assumed that the elimination of non-tradable shares will improve performance of Chinese listed companies.

However, the negative relationship between proportion of tradable shares and performance of Chinese listed companies should not make the elimination of non-tradable shares appear to be an adverse policy. For instance, the elimination of non-tradable shares leads to more outside investors having opportunities to take part in the process of corporate decision making in Chinese listed companies. Additionally, the elimination of non-tradable shares will motivate more M&A activities in the Chinese market. These activities will drive Chinese listed companies to adopt a good corporate governance mechanism, which in future will strengthen its effect on firm performance. Under this circumstance, corporate governance mechanisms will have more opportunities to influence the performance of Chinese listed companies. Thus, although to some extent the elimination of non-tradable shares is not a factor in improving firm performance during the sample period studied, it may in the long run affect firm performance of Chinese listed companies.

5.5.2.2. State ownership and firm performance

Besides stock segmentation, another criticism of the ownership structure of Chinese listed companies is state ownership. Chen *et al.* (2007) and Xu *et al.* (2005) state that state ownership impairs firm performance of Chinese listed companies. Figures of table 5-1 to 5-9 indicate that state ownership does not affect performance of listed companies. Thus, the hypothesis that state ownership will impair firm performance in Chinese listed companies cannot be accepted

Although economic reform promotes the development of the market mechanism in the Chinese market, the influence of the Chinese government is unlikely to be quickly reduced in the foreseeable period (cs.com.cn, 2010; Zhao, 2010). Thus, the state still plays an important role in Chinese economics. Under this circumstance, the Chinese government is able to influence resource allocation in the Chinese market. Therefore, companies that are owned by the state will be given priority in getting resources. For instance, in some specific industries (e.g. oil, power/grid, minerals/mining, and defence), the leading companies are state owned. Thus, state ownership is a factor in improving firm performance in some Chinese listed companies.

On the other hand, as the Chinese market is developing, the market mechanism is increasing its influence on it. Under this circumstance, the weakness of state ownership might be exacerbated. Compared with private market participants, the state's managerial decisions are oriented by non-commercial factors. Additionally, the managerial efficiency of non-state owned companies might be higher than that of state owned companies. For instance, private listed companies have more need to increase managerial efficiency (Yi,

161

2007). Greater managerial efficiency will help companies to maximise the output with minimum input, thereby increasing firm performance.

These opposing effects of state ownership on firm performance mean that state ownership does not to affect firm performance in Chinese listed companies in general.

5.5.2.3. Ownership concentration and firm performance

Ownership concentration is another feature of the ownership structure of Chinese listed companies. Large shareholders hold substantial shares in listed companies, thereby leaving other shareholders with no opportunities to influence the management of those companies. Conventional wisdom indicates that the unchallengeable shareholders will impair the quality of corporate governance and thus impair firm performance. Previous papers support this opinion with evidence from the developed market (Yeh, 2005; Dahya *et al.*, 2008). However, results of section 5.4 indicate that ownership concentration (1STPER) does not affect firm performance (ROE/ROA/Q) in Chinese listed companies.

Currently, the majority of Chinese investors are individual investors (Zhang *et al.*, 2010). Thus, they do not have ability to monitor the listed companies (Tang *et al.*, 2004). Hence, the majority of shareholders of Chinese listed companies fail to impose supervisory pressure on the company's executives, thereby causing managerial activities to be aligned with the interests of those executives. Recent market reform of the Chinese market allows more individual and small investors to become shareholders of Chinese listed companies,

thereby decreasing the supervisory pressure from shareholders. Ownership concentration causes shareholder-monitoring to be restricted to the large shareholders, especially the majority (holding) shareholders. This will increase the deterrent effect of shareholder monitoring and therefore drive the executives to reduce their self-interested activities. A company which has a low incidence of self-interested activities will have low agency cost, and thus better firm performance in the market.

However, the weakness of inappropriate ownership concentration cannot be ignored. Inappropriate ownership concentration will exacerbate the conflicts of interest between shareholders of companies. Under this circumstance, it increases the agency cost of companies, and thus, decreases firm performance. Figures of table 4-1 (page 109) indicate that the 1STPER is highly correlated to the SPER. Thus, in state owned companies, in which the state is holding shareholder, the effect of ownership concentration on firm performance should be similar to that of state ownership. The majority of Chinese private listed companies are managed by the whole family (Li *et al.*, 2005). Thus, there is a blood relationship between large shareholders and corporate executives. Under this managerial hierarchy, the interests of executives are similar to that of the large shareholders, and vice versa. In this case, ownership concentration will not be a factor in driving the corporate executives to increase firm performance.

Generally, the opposite effects of ownership concentration on firm performance mean that 1STPER does not affect firm performance (ROE/ROA/Q) in Chinese listed companies.

5.5.2.4. Institutional ownership and firm performance

Institutional ownership is a solution to the problem of the free rider, since it concentrates ownership and increases the influence of shareholders who can drive corporate executives to increase firm performance (Admati *et al.*, 1994; Lin *et al.*, 2007). The empirical results section in 5.2 (tables 5-1 to 5-9) support the hypothesis that institutional ownership is a positive factor in the improvement of firm performance of Chinese listed companies, since LNTINTPER positively affects firm performance.

The majority of Chinese investors are small investors and they lack the power to monitor the managerial activities of the Chinese listed companies, which would in turn motivate the executives to increase firm performance (Tang *et al.*, 2004; Zhang *et al.*, 2010). Instead, institutional investors in effect represent the small shareholders in monitoring the corporate managerial teams. Institutional investors can impose supervisory pressure on the corporate executives of the Chinese listed companies, to drive them to increase firm performance.

Additionally, institutional ownership will reduce the negative influence of majority (holding) shareholders on firm management. Market reform removes the trading restrictions on non-tradable shares, thereby leading to institutional investors being able to take part in the process of corporate decision making. This ensures that the process of decision making will not be monopolised by the majority (holding) shareholders. Thus, institutional ownership reduces the conflict of interest between the shareholders of listed companies, reduces agency cost and increases firm performance of those companies. As the market

develops, institutional investors will improve the effectiveness of corporate governance mechanisms, thereby further helping Chinese listed companies to achieve better firm performance.

5.5.3. Board of directors and firm performance

In contemporary listed companies, the performance and effectiveness of the corporate governance mechanism depend on the board of directors, since it represents the corporate shareholders in monitoring the companies. Thus, the board of directors will determine the quality of the corporate governance mechanism and influence firm performance of the listed companies. Previous studies consider that the performance of a board of directors will be determined by its size, independence, and leadership structure (Lakhal, 2003; Ragothaman and Gollakota, 2009). Previous studies of other developed markets indicate that the characteristics of a board of directors will affect firm performance (e.g. Jensen, 1993; Mura, 2006; Schmid and Zimmermann, 2008). Thus, this thesis also adopts the same three variables to evaluate the effects of the board of directors on firm performance of Chinese listed companies. However, in the tables presented in section 5.4, LNBSIZE, INDPER, and ROELSEP have no significant effect on firm performance of Chinese listed companies. Thus, the board of directors is not a factor in increasing performance in Chinese listed companies.

Members of the board of directors should be nominated by a majority of the shareholders to ensure that the board will act objectively on behalf of shareholder interest. If the process of nomination for board membership is influenced by only a few insiders, such as executives and majority (holding)

shareholder, the board of directors will not properly represent the company's shareholders. In Chinese listed companies, board members are nominated by the Annual General Meeting (AGM) of shareholders. However, the special ownership structure of Chinese listed companies (the inappropriate ownership concentration discussed in section 2.3 and 2.4), means that the AGM is seriously influenced by the majority shareholders, who nominate their affiliated people to work as members of the board (Huang *et al.*, 2006; Kang *et al.*, 2008; Zhang, 2009a; Zhou, 2009). This phenomenon breaches managerial discretion and compromises the independence of a board of directors. It also means that the board of directors is influenced by the interests of large shareholders, especially the majority (holding) shareholders. Thus it can be said that the effect of a board of directors on firm performance of Chinese listed companies is partly determined by the attitude of the larger shareholders.

5.5.3.1. Board size and firm performance

In western listed companies, such as in the UK or US, board size determines the performance of a board of directors and therefore influences the performance of the companies (Lakhal, 2003). However, the results presented in tables 5-1 - 5-9 indicate that in Chinese listed companies, board size does not affect firm performance. One possible reason for this phenomenon is the influence of large shareholders, especially the majority (holding) shareholder. Because of the influence of the large shareholders who nominate them, members of the board align their activities with the interests of those shareholders. In state owned listed companies, the government nominates officials to work as members of the board of directors (Huang *et al.*, 2006). In private listed companies, family members will be nominated to work as members of the board of directors (Li *et al.*, 2005). Although market reform is beginning to

166

disperse the ownership structure of Chinese listed companies, table 4-1 indicates that the average holding percentage of the largest shareholder of Chinese listed companies is 38%, which means that the influence of large shareholders on listed companies cannot be reduced immediately (Kang *et al.*, 2008). Thus, board size does not currently affect the performance of Chinese listed companies.

5.5.3.2. Role separation of the Chairman and CEO and firm performance

Previous studies indicate that the leadership structure, and whether CEO and chairman roles are separated or combined, will affect the efficiency of a board of directors (Fama and Jensen, 1983; Schmid and Zimmermann, 2008). Role separation of the CEO and the chairmen will affect the interaction between the board of directors and the managerial team in a company, thereby further affecting firm performance of this company.

However, empirical results from tables 5-1 to 5-9, in section 5.2, indicate that role separation of CEO and chairman does not affect firm performance. As mentioned above (Zhang, 2009; Zhou, 2009), majority (holding) shareholders have substantial influence in Chinese listed companies. They control the process of corporate nomination to the boards of those companies. Both CEO and chairman of the boards are nominated and appointed by the majority (holding) shareholders. This ensures that majority (holding) shareholders have firm control of managerial activities. Thus, the CEO and chairman of Chinese listed companies have less managerial discretion than their western counterparts. Managerial activities are driven by the attitude of the majority (holding) shareholders of the Chinese listed companies. This phenomenon leads

to there being no significant relationship between the role separation of CEO and chairman of directors and firm performance of the Chinese listed companies. Thus, role separation has no significant effect on firm performance of Chinese listed companies.

5.5.3.3. Independent directors and firm performance

The previous empirical results indicate that there is a negative relationship between board independence and firm performance (e.g. Fernandes, 2005; Mura, 2006), since the independent status of some directors means they may be unqualified for the role, and thus make decisions that reduce firm performance. However, the empirical results of this thesis find that there is no significant relationship between board independence and firm performance.

The main reason for this phenomenon is still the influence of majority (holding) shareholders and over-powerful corporate executives. The process of nominating independent directors in Chinese listed companies is seriously affected by the majority (holding) shareholders and these over-powerful corporate executives (Kang *et al.*, 2008). Under this circumstance, independent directors of Chinese listed companies cannot be classified as truly independent, since their independence has been impaired. These independent directors cannot really increase the quality of the corporate governance mechanism, or influence firm performance of the Chinese listed companies.

Another important reason that board independence has no significant effect on firm performance is the low proportion of independent directors on the board. The code of corporate governance in the Chinese market requires listed companies to ensure that the minimum proportion of independent directors on a

board of directors is 1/3. Table 4-1 (page 109) indicates that the average percentage of independent directors on the board in Chinese listed companies is around 1/3. In other words, in Chinese listed companies, the majority of board members are non-independent directors.

Thirdly, a shortage of human resource restricts the effect of independent directors on firm performance. Besides the influence of majority (holding) shareholders, the shortage of qualified people also reduces the quality of independent directors (Wei and Geng, 2008; Gu, 2009),as many independent directors lack the relevant skill and ability to work as qualified directors of Chinese listed companies.

Finally, the legal system in the Chinese market fails to define the duty and responsibilities of independent directors (Clarke, 2006). This makes independent directors of the Chinese listed companies less likely to monitor corporate executives. The code of corporate governance in the Chinese market fails to provide a clearly duty for independent directors (Gu, 2009), and as yet there is no upgraded code to solve this problem. Thus, low board independence leads to independent directors having no significant effect on firm performance.

Overall, the boards of directors of Chinese listed companies cannot be considered a factor in improving their company performance due to the substantial influence of majority (holding) shareholders. Thus, to increase the effectiveness of the board of directors on firm performance of Chinese listed companies, the influence of majority (holding) shareholders should be restricted to protect the managerial independence of those boards.

5.5.4. Subcommittees and firm performance

In a good corporate governance mechanism, an important component is the board subcommittee. Board subcommittees work as assistants to the boards of the listed companies and help the directors increase their performance and efficiency. The advantage of using board subcommittees is to reduce the influence of corporate managerial teams and large shareholders on the board of directors. Previous studies find that using board subcommittees will increase the quality of the corporate governance mechanism of companies (e.g. Bizjak and Anderson, 2000; Ruigrok *et al.,* 2006; Laplante and Tong, 2007), thereby increasing firm performance of the listed companies.

In general, tables 5-1 to 5-9 indicate that board subcommittees, which are audit committee, compensation committee, and nomination committee, have positive effects on firm performance of Chinese listed companies.

The previous studies mentioned in the first paragraph of this section find that the audit committee will ensure the quality of internal audit and increase corporate transparency, and that the compensation committee will ensure the remuneration efficiency and also increase corporate transparency. Table 4-1 indicates that after market reform, more Chinese listed companies began to appoint audit, compensation, and nomination committees. This means that Chinese listed companies began to consider the quality of their corporate governance mechanisms. Under this circumstance, the audit and compensation committees will have more opportunities to affect firm performance. Compared with state owned listed companies, private companies are more likely to comply with the requirements of the market mechanism. To do this, private companies will strengthen their corporate governance mechanisms. In this way, the use of audit and compensation committees positively affects firm performance in

private companies. In state owned listed companies, the substantial influence of the government means that the market mechanism has little effect on firm management (Kang *et al.*, 2008). In this case, the use of board subcommittees does not affect firm performance in state owned listed companies.

The empirical results cannot really support the hypothesis that the nomination committee positively affects firm performance. This could be due to the reason discussed above. In Chinese listed companies, large shareholders and executives are over-powerful, and they control the management of companies (Wei and Geng, 2008). Under this circumstance, the nomination committee cannot effectively influence the process of board nomination, and so it does not affect firm performance (ROE) of Chinese listed companies.

5.5.5. Board of supervisors and firm performance

Besides the board of directors and its subcommittees, another important component of the corporate governance mechanism in Chinese listed companies is the board of supervisors. Previous studies state that the board of supervisors of Chinese listed companies will not have an effect on firm performance (Tian and Estrin, 2005; Deloitte-China, 2010), since it lacks real monitoring power. Empirical results from tables 5-1 to 5-9 in section 5.4 indicate that there is no significant relationship between the size of the supervisory board and firm performance. These are consistent with previous studies that mentioned in section 4.3.

Although the laws and codes of the Chinese market define the board of supervisors as an important internal monitoring institution, in practice, the board of supervisors cannot effectively monitor the executives of Chinese listed companies. As mentioned in previous sections, the board of supervisors lacks any real monitoring power in the Chinese listed companies (Kang *et al.*, 2008). In Chinese listed companies, the board of supervisors almost works as a consultant to the board of directors (Zhou, 2011). Although the board of supervisors has recently been given more genuine monitoring power, the managerial hierarchy of Chinese listed companies will reduce the effect of this. Additionally, the problem of duty duplication between the board of supervisors and the independent directors also causes the board of supervisors to have no significant effect on the firm performance of Chinese listed companies (Gu, 2009; Jiang, 2009). The influence of majority (holding) shareholders also results in no significant relationship between the board of supervisors and firm performance. Majority (holding) shareholders can influence the process of nomination to the board of supervisors and therefore provide the opportunity of controlling it in their own interests (Li *et al.*, 2005; Kang *et al.*, 2008). Thus, a board of supervisors cannot affect the quality of a corporate governance mechanism and thereby influence firm performance.

5.5.6. Market reforms and firm performance

At the end of 2005 and the beginning of 2006, there was a series of reforms in the Chinese market. These reforms include the reform of the ownership structure of Chinese listed companies and new legislation. To measure the effects of this series of market reforms on firm performance in Chinese listed companies, the regression model introduces the year dummy

variable. Empirical results of section 5.4 indicate that there is a negative relationship between the year dummy and firm performance in Chinese listed companies. This means that firm performance during the post-reform period is better than that of the pre-reform period. In other words, the series of market reforms help Chinese listed companies to increase their firm performance.

After market reform, Chinese listed companies begin to be concerned about the quality of the corporate governance mechanism. Figures of table 4-1 indicate a trend showing that Chinese listed companies begin to increase the quality of corporate governance mechanisms after market reform. For instance, the proportion of institutional investors is increasing, and more companies have established board subcommittees. These activities will increase the quality of corporate governance in Chinese listed companies and therefore decrease their agency cost. Lower agency cost means companies will achieve a better performance in the market. New legislation motivates small shareholders and market regulators to more effectively monitor listed companies. New legislation gives more power to small shareholders and market regulators. This will motivate them to have more interest in monitoring listed companies and drive them increase firm performance. Generally speaking, the market reform that started at the end of 2005 is a factor in the improving performance of Chinese listed companies.

5.6. Robustness test

To ensure the robustness of the empirical results reported in this chapter, this thesis employs the pooled OLS technique to estimate the regression models of this chapter again. Results of the pooled OLS technique will be summarised in this section.

All of results of the pooled OLS estimation are listed in appendix 1-9. Firstly, empirical results indicate that firm size has a positive effect on ROE, but has negative effects on ROA and Q. The debt-to-equity ratio has a positive effect on ROE, but has negative effects on ROA in Chinese listed companies. The ownership concentration has a positive effect on firm performance in the full sample and the sample of state owned companies, but this effect does not exist in the sample of private companies. State ownership has a positive effect on firm performance especially in state owned listed companies. However, this effect also does not hold in private listed companies. A greater institutional ownership helps Chinese listed companies to get better firm performance in the market. There is a negative relationship between the proportion of tradable shares and firm performance in Chinese listed companies and this result is opposite to the initial purpose of the policy of elimination of non-tradable shares. Characteristics of the board of directors and the board of supervisors are not factors in determining firm performance of Chinese listed companies. The audit committee and the compensation committee have positive effects on firm performance in Chinese listed companies, especially in private listed companies. However, the nomination committee will have no effect on firm performance in Chinese listed companies. Finally, there is a negative relationship between the market reform dummy and the firm performance of companies. This means that firm performance of the post-reform period is better than that of the pre-reform period.

5.7. Conclusion

This chapter reports and discusses the empirical results of the relationship between the corporate governance mechanism and firm performance.

Because of the characteristics of the Chinese market, in which the state plays an important role, the full sample was divided into two sub-samples - the sample of state owned listed companies, and that of private listed companies. Additionally, regression models of this chapter also considered the influence of market reforms, which started at the end of 2005, on the relationship between corporate governance mechanism and firm performance in Chinese listed companies.

Firstly, the control variables: firm size (LNBV) and debt-to-equity ratio (DERATIO) are found not to affect firm performance, which is measured by the return on equity (ROE) in Chinese listed companies. This is consistent with the findings of previous studies of the emerging markets where large companies will have innovation advantages (Acs and Audretsch, 1987; Vaona and Pianta, 2008). Large companies in the emerging markets also have good corporate governance mechanisms to reduce any conflicts of interest and increase firm performance (Balasubramanian, *et al.* 2010). Additionally, firm size and debt-to-equity ratio were found to have negative effects of firm performance, which is measured by the return on asset (ROA) and Tobin's Q (Q), in Chinese listed companies.

Secondly, the dummy variable of market reform is found to have a negative effect on the firm performance of Chinese listed companies. This means that after market reform, Chinese listed companies performed better in the Chinese market than in the pre-reform period. This result is consistent with the initial purpose of the new market reforms that increase the firm performance of Chinese listed companies

Thirdly, the empirical results report that there is a positive relationship between the proportion of institutional share ownership and firm performance (tables 5-1 to 5-9). This is consistent with previous studies which find that institutional ownership positively affects firm performance of Chinese listed companies (Hovey, 2003; Lin *et al.* 2007). Institutional investors reduce the problem of the free-rider and impose performance pressure on the executives of Chinese listed companies, thereby driving those companies to achieve good firm performance in the market. Additionally, the institutional investor will reduce the influence of large shareholders and ameliorate any conflicts of interest between shareholders, and thereby increase firm performance.

Fourthly, the empirical results indicate that board of directors and board of supervisors do not affect firm performance of the Chinese listed companies (table 5-1 to table 5-9). These results are not consistent with the hypotheses that those boards have a positive effect on firm performance. Because of the influence of large shareholders, especially the majority (holding) shareholder, nomination and appointment of boards of directors and of supervisors are determined by the interests of the large shareholders in the Chinese listed companies (Rajagopalan and Zhang,2008; Kang *et al.,* 2008; Zhou, 2009). Additionally, compared with the board of directors, the board of supervisors is underpowered (Tian and Estrin, 2005: Kang *et al.,* 2008). Thus, the board of directors and the board of supervisors do not affect firm performance in Chinese listed companies.

Fifthly, state ownership is not found to decrease firm performance of Chinese listed companies (tables 5-1 to 5-9). This is inconsistent with the prediction that state ownership has a negative effect on firm performance (Chen

et al.2007b; Li *et al.* 2008). In the Chinese market, some of the listed companies need state ownership to gain competitive advantage to increase their firm performance. However, state ownership also reduces the operational efficiency of other listed companies, thereby lowering firm performance. Thus, in generally, state ownership does not affect firm performance in Chinese listed companies.

Additionally, the empirical results of this chapter also reject the hypothesis that ownership concentration will decrease firm performance of Chinese listed companies On the one hand, ownership concentration will reduce the conflict of interest between shareholders and managers in Chinese listed companies, since Chinese investors are unable to monitor executives effectively (Tang *et al.*, 2004). On the other hand, ownership concentration will exacerbate the conflict of interest between shareholders, thereby decreasing firm performance (Dahya *et al.*, 2008). These opposing effects of ownership concentration on firm performance lead to the insignificant effect of ownership concentration on firm performance in Chinese listed companies.

Sixthly, the empirical results of this chapter (table 5-1 to 5-9) indicate that there is a negative relationship between the proportion of tradable shares and firm performance in Chinese listed companies. The elimination of non-tradable shares release large amounts of non-tradable shares to the market and attract plenty of new investors to join the market. However, this process also exacerbates the problem of the free-rider, which will damage the quality of the corporate governance mechanism. Currently, the majority of Chinese investors are individual investors (Tang *et al.,* 2004; Zhang *et al.,* 2010). Thus, the problem of the free-rider in the Chinese market might be serious. Under this

circumstance, there is a negative relationship between the proportion of tradable shares and firm performance.

Finally, the empirical results find that there is a positive relationship between subcommittees and firm performance (table 5-1 to 5-9). This is consistent with studies in the developed market (Bizjak and Anderson, 2000; Ruigrok *et al.,* 2006; Laplante and Tong, 2007). As the market developed, more Chinese listed companies began to pay attention to the issue of corporate governance. Thus, subcommittees now have more opportunities to influence firm performance of Chinese listed companies.

In the next two chapters, the phenomenon of information leakage in the Chinese market will be empirically evaluated, and the relationship between corporate governance and information leakage in the Chinese securities market will be empirically assessed. Because of the unsophisticated corporate governance in Chinese companies, asymmetric information is a serious problem in the Chinese securities market. Executives in Chinese companies are less monitored by shareholders, since most of them are individual and small shareholders (Zhang *et al.,* 2010). At the same time, the problem of illegal insider trading is serious in the Chinese securities market (Huang, 2007). As mentioned in Chapter 3, there is a relationship between illegal insider trading and information leakage. Therefore, there might be serious information leakage in the Chinese securities market. This thesis plans to empirically examine the relationship between corporate governance and information leakage in the Chinese market. Chapter 6 will empirically evaluate the problem of information leakage in the Chinese securities market. Chapter 7 will empirically assess the relationship between corporate governance and information leakage, in order to

evaluate the effectiveness of corporate governance arrangements in Chinese companies.

Chapter 6. Is there informed trading around corporate earnings announcements?

6.1. Introduction

The previous chapter empirically evaluated the effects of corporate governance on firm performance in Chinese companies. Another purpose of this thesis is to examine the relationship between corporate governance and information leakage in the Chinese market. Thus, the purpose of this chapter is to empirically examine the extent of the problem of information leakage in the Chinese market.

Previous studies in the Chinese market indicate that there is a significant CAR before the announcement of a merger and acquisition, which disappears after the announcement date (Tuan *et al.*, 1995; Shi and Jiang, 2003; Yan and Zhao, 2006). Thus, they suggest that the content of announcements is leaked to the market prior to the announcement date and there might have been illegal insider trading activities in the market. Zhang and Liu (2005) find that before an announcement there are changes in trading volume, and this suggests there is undetected insider trading in the Chinese securities market.

In this thesis, a corporate earnings announcement is set as the event, since earnings announcements are an important corporate disclosure. Earnings

announcements reveal information that will help the investors in their evaluation of the companies.

Results of event study indicate that there are significant CARs, increase in run-up index and trading volume prior to an earnings announcement date in the Chinese securities market. According to the previous studies (mentioned above), this could be the result of information leakage in the market, and there might have been illegal insider trading activity as well.

6.2. Information environment of the Chinese capital market

One feature of a sophisticated capital market is the availability of information or the transparency of companies. Greater information availability will facilitate the resource allocation in a capital market, and increase the transparency of companies. Greater transparency of listed companies will reduce the information asymmetry between companies and investors. This will reduce the incidence of fraudulent activity, which is a result of the information asymmetry. As one of the outstanding developing markets in the world, the Chinese capital market is trying to improve the availability of information to increase market efficiency. Practically, however, it will take a long time to achieve this aim.

The Chinese securities market used to be characterised by low information availability, low transparency, and serious information asymmetry. Thus, the regulatory agency of the Chinese securities market issued a series of rules to increase the availability of information on Chinese listed companies. One purpose of these rules is to motivate those companies to increase the

quality and frequency of information disclosure, thereby increasing the quality of the information environment in the Chinese capital market. Although Chinese listed companies are improving the quality of information disclosure, market participants are still dissatisfied with the accuracy and timeliness of the disclosures (Yang, 2010a; Yang, 2010b).

In the Chinese market, listed companies are reluctant to disclose negative news; or in other words, Chinese listed companies are highly motivated to suppress negative news. One explanation of this phenomenon is the political incentives that will cause Chinese listed companies to suppress the negative news (Piotroski *et al.*, 2010). Currently, the majority of Chinese listed companies are still controlled or influenced by the state (Piotroski *et al.*, 2010). Under this circumstance, these companies are under less pressure to disclose negative news promptly, since these companies are not pure business entities. The state acts as a majority shareholder in most of the Chinese listed companies, and this ownership structure might result in listed companies having less incentive to disclose negative news. The politically astute managers of these listed companies want to retain their reputation through the suppression of negative news (Piotroski *et al.*, 2010). At some political events, such as the meeting of Communist Party, the listed companies will control the release of bad news (Jin and Myers, 2006).

In the Chinese market, some listed companies become involved in earnings management (Aharony *et al.*, 2000; Chen and Yuan, 2004). Gu (2010) argue that Chinese listed companies want to manage the actual earnings in order to comply with the forecasted earnings. Through earnings management, companies will provide a relatively better performance report to investors.

However, this practice will hide the weaknesses of companies, thereby misleading investors. Thus, the practice of earnings management exacerbates information asymmetry between companies and investors, since investors receive managed information from companies. Earnings management reduces the quality of the information environment in the Chinese capital market. Additionally, earnings management exacerbates the problem of related party transactions in the Chinese stock market. Piotroski and Wong (2010) find that Chinese listed companies have a strong willingness to boost their earnings via related party transactions between them and their unlisted parent companies. This will help them to provide an outstanding financial report and avoid being delisted from the exchange. Through related party transactions, listed companies hide their inefficient management.

To reduce the information asymmetry between listed companies and investors, the CSRC requires listed companies to disclose the performance forecasting. The purpose of performance forecasting is to reduce the effect of an unexpected loss on stock price. However, in fact, the performance forecasting cannot reduce the information asymmetry between listed companies and investors in the Chinese market. The major issue in performance forecasts of Chinese listed companies is the large spread between the forecast and the reality (Zhao, 2005). For instance, the forecast result may be quite different to the result of the official announcement. Under this circumstance, performance forecasting cannot reduce information asymmetry between listed companies and investors in Chinese capital market. Additionally, the performance forecasting of Chinese listed companies has the following issues (Yang *et al.*, 2002):

- The performance forecasting contains limited information. In other words, investors cannot get more information about the performance of listed companies from the forecasting.

- The forecasting lacks reason for unexpected losses.

- Only companies that wish to refinance in the capital market will provide performance forecasting.

A good quality information environment also depends on the media. However, in the Chinese market, the media lacks independence. In China, the entire media industry is controlled by the government, which includes both local and national levels. The result of this is that the media have no desire to reveal the fraud cases in listed companies, especially in the state owned listed companies. Although the government issues licences to private media companies, their reporting behaviour is also influenced by political factors. Additionally, the corruption in the Chinese market will reduce the effectiveness of the media in improving the quality of the information environment. Through the complicated guanxi network in the Chinese market, private companies will influence local government. Under this circumstance, local government will seek to hide news of fraud cases in some private listed companies by influencing the local media. Some large private companies are able to affect the national media. Thus, the potential for the media to succeed in improving the quality of the information environment is limited.

Overall, there is serious information asymmetry between companies and investors in the Chinese capital market. Under this circumstance, the profitability of illegal transaction will be attractive to market participants.

6.3. Information leakage and insider trading

Keown and Pinkerton (1981:855) indicate that the significant 'abnormal price movements can be interpreted as *prima facie* evidence of the market's reaction to information in advance of its public announcement'.

Previous studies in the US market found that registered insiders, whose transactions are monitored by the SEC, have the ability to outperform the market (Jaffe, 1974; Finnerty, 1976). This means that these registered insiders possess special information which helps them to do this. However, these studies only focus on the performance of registered insiders, whose trading data can be collected and whose activities are watched closely by the regulators.

The trading activities of people who can access non-public information through registered insiders, such as the trading activities of the insider's family and friends, are not effectively regulated by the market regulatory agency (Keown and Pinkerton, 1981). Because it is hard to directly monitor trading that is motivated by inside information, the price movements prior to a major event can be evidence of such trading activities (Keown and Pinkerton, 1981). Mandelker (1974) states that positive returns just prior to the announcement date of a merger will be evidence that good news has leaked to the market. The trading that is based upon the leaked information is illegal insider trading (Keown and Pinkerton, 1981). Through research in the US market, Keown and Pinkerton (1981) found evidence that insiders usually seek to carry out insider

trading through a third party, to avoid being detected by the market regulatory agency.

In the Chinese securities market, insider trading activity is banned by the market regulatory agency (Huang, 2007). However, weak market regulatory performance and efficiency make this regulation ineffective in detecting insider trading activities in that market (Huang, 2007; Shen, 2008). In the Chinese securities market, insider trading activities are widespread and the majority of the market participants believe that insider trading activity is becoming an open secret (Huang, 2007).

Huang (2007) indicates that the insiders in the Chinese securities market will include traditional insiders, such as directors and executives, and other likely insiders, such as the staff of the market regulatory agency, the securities companies, and other people who have access to the inside information. Thus, the scope for insiders in the Chinese securities market is very large; hence, the market regulatory agency will face more regulatory difficulties than other markets. Additionally, there is a trend that more and more insider trading in the Chinese securities market is committed by individuals (Huang, 2007). This will increase the difficulties of regulation, since the regulatory agent cannot monitor the activities of all individuals. The China Securities Regulation Commission (CSRC) states that the majority of insider trading cases are characterised by information leakage (cs.com.cn, 2010). Insiders will leak the information to affiliated individuals, and these individuals will use the illegal information. For instance, a recent insider trading case in the Chinese securities market indicated that the traditional insiders leaked information to their affiliated people, and then this information was dispersed to other investors (Zhou, 2011). The

corporate insiders leak the material information to other affiliated people to persuade them to trade shares before the information disclosure. Through the third party transaction, insiders try to reduce the risk of being caught by the market watchdog. To avoid being detected by the market watchdog, insiders complete their transaction through an affiliated account. Through affiliated accounts, transactions of insiders will not be monitored by the market regulatory agency, since their names will not appear in the transaction. Thus, this will increase difficulties of insider trading regulation, thereby reducing the risk of being caught by the watchdog. When affiliated people receive the inside information, they convey this information to more affiliated investors. Thus, the information is dispersed in the market.

Insiders leak the information to other people who then become informed traders. These informed traders may trade shares prior to the announcement date to ensure the profitability of their information. Thus, the abnormal return prior to the announcement date may reflect the trading of these informed traders.

6.4. Event study

A key feature of financial markets is that they are sensitive to information. Therefore, information announcements can cause market volatility. 'Economists are frequently asked to measure the effect of an economic event on the value of a firm' (Campbell, 1997:149).

6.4.1. Abnormal Return and Cumulative Abnormal Return

6.4.1.1. Abnormal return

Abnormal return of individual stock can be measured by the difference between expected return of stock *i* on event date, $R_{i,t}$, and the expected return on event date $E[R_{i,t}]$. Thus the equation of abnormal return of stock on the event day is:

$$AR_{i,t} = R_{i,t} - E[R_{i,t}]$$

To calculate the abnormal return of each security, a most important precondition is the estimate of the normal return of each security. Campbell *et al.*(1997) state that calculations of normal return can be divided into two different categories statistical and economic. The difference between statistical and economic calculation is that the former category depends on statistical assumption while the latter depends on economic argument (Campbell *et al.*, 1997). Campbell *et al.* (1997:154) state that 'the potential advantage of economic models is not the absence of statistical assumptions, but the opportunity to calculate more precise measures of the normal return using economic restrictions'.

Constant-Mean-Return Model

$$R_{it} = \mu_i + \xi_{it}$$

$$E[\xi_{it}] = 0 \quad Var[\xi_{it}] = (\sigma_{\xi i})^2$$

'Where R_{it}, the *i*th element of R_t, is the period-*t* return on security *i*, ξ_{it} is the distribution term, and $(\sigma_{\xi i})^2$ is the (*i, i*) element of Ω' (Campbell *et al.*, 1997:154). Although the core principle of the constant-mean-return model is very simple, Brown and Warner (1980; 1985) argue that the results that are generated by the

constant-mean-return model are similar to the results that are generated by other sophisticated models.

Market Model

Campbell *et al. (*1997:155) state that the market is 'a statistical model which relates the return of any given security to the return of the market portfolio'.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

$$E[\epsilon_{it}] = 0 \quad Var\ [\epsilon_{it}] = (\sigma_{\epsilon i})^2$$

'Where R_{it} and R_{mt} are the period-t returns on security I and the market portfolio, respectively, and ϵ_{it} is the zero mean disturbance term. α_i, β_i, and $(\sigma_{\epsilon i})^2$ are the parameters of the market model' (Campbell *et al.,* 1997:155)

Compared with the constant-mean-return model, the market model is definitely more sophisticated. The market model removes the effect of market return volatility, and thus reduces the abnormal return variance. Campbell *et al. (*1997:155) proposed that the market model 'leads to increased ability to detect event effects'.

6.4.1.2. Cumulative Abnormal Return

To measure the effect of an event on market return, the individual abnormal return of stock is calculated. In order to draw an overall conclusion of the effect of the event on the market, each abnormal return observation must be cumulated (Campbell *et al.,* 1997). Campbell *et al.* (1997:160) proposed the 'aggregation is along two dimensions – through time and across securities'.

Cumulative abnormal return is employed to accommodate multiple sampling intervals within the event window. CAR can be defined as the cumulative abnormal return of individual stock between trading day [t_1]and trading day [t_2] in event window ($t_1 <= t_2$)

$$CAR\,(t1, t2) = \sum_{t=t1}^{t2} (ARt)$$

The above formula is only applied to a single event. In fact the research sample for financial event study always includes many events. Thus, the formula must be extended to the whole sample, which contains many event observations. Campbell *et al.* (1997:161) proposes that 'to aggregate across securities and through time', one assumption is that the abnormal returns of different securities should not correlate to each other. 'The absence of any overlap and maintained distributional assumptions imply that the abnormal returns and the cumulative abnormal returns will be independent across securities' (Campbell *et al.,* 1997:161).

$$\overline{CAR}(t1, t2) = \frac{1}{N} \sum_{i=1}^{N} \widehat{CAR}\imath\,(t1, t2)$$

6.4.1.3. T- test

The t-statistic is for the null hypothesis of no abnormal return associated with the earnings announcement in month t is computed as:

$$t = \frac{ARt}{\hat{\sigma}(ARt)}$$

$\hat{\sigma}$ (AR$_t$) is the estimated cross-sectional standard deviation of average abnormal return in month t. To test the null hypothesis of non-abnormal return

associated with earnings announcement over the time interval from month T_1 to month T_2, the equation of t - statistic is:

$$t=CAR(T1,T2)\bigg/\sqrt{\sum_{t=T1}^{T2}\widehat{\hat{\sigma}(AR_t)^2}}$$

(Lin and Howe, 1990:1277).

Previous studies about merger profitability use the event study method, and they find a significant cumulative abnormal return prior to the announcement date (Keown and Pinkerton, 1981; Tuan *et al.*, 1995). They state that this will prove that inside information is leaked to the market prior to the public announcement, and it may generate the problem of illegal insider trading. Thus, this thesis also employs the event study to measure the CAR before corporate annual earnings announcement in the Chinese securities market.

In this thesis, the corporate annual earnings announcements of the Chinese listed companies will be chosen as the events. An earnings announcement is an important corporate disclosure in the securities market, since it affects investor behaviour (Leuz *et al.*, 2003; DeFond *et al.*, 2007). The content of annual earnings announcements will help investors evaluate a company's performance, and thus help them to decide their investment strategy. Therefore, annual earnings announcements are an important kind of corporate disclosure. In other words, the content of earnings announcements can be seen as material information about companies. Ball and Brown (1968), Beaver (1968), and Ball and Kothari (1991) state that an earnings announcement will affect the abnormal stock returns and abnormal variability of stock return. Thus, the corporate annual earnings announcement is the event

for the purposes of this thesis. Seyhun(1986), Jenter(2005), and Adriana *et al.*, (2010) state that insiders will trade shares in a short window prior to the earnings announcement, as a result of a trade-off between the revenue of capitalising on foreknowledge of the announcement and the risk of regulatory detection and reputation loss. Previous research in the US market found that there is information leakage prior to the announcement date (Jackson and Madura, 2003; Dedman, 2004).

As one of the largest emerging securities market in the world, the Chinese securities market has serious information asymmetry. Additionally, the unsophisticated regulatory mechanism of the Chinese securities market means that the legal penalties are less than the profit of illegal trading activities. Thus, there is a serious insider trading problem in the Chinese securities market (Huang, 2007).

Huang (2007) discusses the characteristics of insider trading activities in the Chinese securities market. He indicates that besides the traditional insiders, such as executives, directors, and majority (holding) shareholder, insiders also include other potential insiders, such as securities regulators, listed companies, and securities companies. Besides the traditional insider trading activities when insiders trade their company's shares based on inside information, Huang (2007) indicates that in the Chinese securities market, the potential insiders listed above also benefit illegally from insider trading activities. Additionally, the complex personal relationships between Chinese market participants make it hard for insiders and potential insiders to be detected. For instance, Huang (2007) indicates that insiders borrow other investors' accounts to avoid being detected by the market regulatory agency. Thus, the network of insiders in the

Chinese securities market is very complex, since it includes traditional insiders and more 'likely insiders'. Under this circumstance, insider trading will be difficult to detect. Thus, information leakage prior to a corporate earnings announcement in the Chinese securities market may generate more insider trading activities than in other markets.

The window of the event study is the period 30 days prior to the corporate announcement day (-30, 0). If there are significant CARs prior to the announcement date, it will be evidence of inside information leakage in the market. To complete the event study, the estimation window in this thesis is the period that from the day (-231) to the day (-31). The estimation window will help to estimate the daily abnormal return and then to find the cumulative abnormal return.

6.4.2. Price run-up index

To measure the impact of run-up in stock prices, this thesis employs the portfolio run-up index, which was introduced by Jarrell and Poulsen in 1989 (Jarrell and Poulsen, 1989).

Firstly, this thesis measures the unanticipated premium from day *t* to day +1, CAR (*t*, 1). Jarell and Poulsen (1989:230) define the unanticipated premium as 'the average additional premium received by shareholders between day *t* and the day following' the announcement, and thus, reflects the 'value of the additional information contained in the period' around the companies' announcement date. The stock price will be driven by the new information. The purpose of unanticipated premium is to measure the market's activity at the in-play announcement. If the market has anticipated the forthcoming

announcement, run-up will exist. To some extent, if there is greater run-up, there will be less unanticipated premium.

Secondly, this thesis calculates a portfolio run-up index for each day *t* from thirty days before to ten days after the announcement date:

$$[CAR (-30, t) / CAR (-30, +1)] * 100$$

'The run-up index equals the percentage of the eventual premium that has been observed as of day *t* (Jarell and Poulsen, 1989:230). Day +1 is set as the standard for measuring run-up, since, on the first day after the announcement date, market participants will get the opportunity to learn, react, and trade shares based on the information from the announcement.

6.5. Trading volume

Besides the event study, this thesis also measures changes in trading volume around the announcement day. This will provide alternative way to study the market's reactions to the corporate information disclosure. Previous studies of the Chinese securities market also measure the abnormal trading volume before the corporate announcement (Shi and Jiang, 2003; Yan and Zhao, 2006). They find that there is an abnormal changes in the trading volume before the material information disclosure in the Chinese securities market. Thus, they suggest there might be insider trading activities prior to the announcement in that market. Therefore, this thesis adopts this strategy to measure the changing of trading volume around the date of the corporate earnings announcement.

In this thesis, normalized abnormal volume (NAV) is employed to measure the changing of trading volume. This method was also introduced by Jarrell and

Poulsen(Jarrell and Poulsen, 1989). The purpose of NAV is to compare the trading volume around the announcement date to that of a clean period. The clean period is defined as a period in which no earnings announcement should have affected trading. Jarrell and Poulsen (1989:231) state that the calculation of trading volume should use the natural logarithm of the daily volume, since the 'stock volume is positively skewed'.

In this thesis, the set of NAV will be similar to that of event study. The clean period is from day -231 to day -31. The daily trading volume for each company during the period from day -30 to day 10 to that of the clean period will be compared.

The NAV for stock *i* on day *t* is:

$$\text{NAV}_{i,t} = \frac{\text{TV}_{i,t} - \mu_{i,t}}{\sigma_{i,t}} \text{(Bajo, 2010:6)}$$

The average daily trading volume for each firm *i* over the clean period is:

$$\mu_{i,t} = \frac{1}{200} \sum_{t=-230}^{-31} \log(\text{Volume}_{it})$$

The standard deviation of mean log trading volume $\sigma_{i,t}$ is:

$$\sigma_{\text{i,t}} = \sqrt{\frac{1}{199} \sum_{t=1}^{200} (\text{TV}_{i,t} - \mu_{I,T}^{TV})^2}$$

6.6. Empirical results of information leakage, Run-up Index, and NAV

The full sample of event study covers the period from 2004 to 2008. At the end of 2005, Chinese listed companies began to abolish non-tradable shares.

Because of this, the full sample is divided into pre-reform and post-reform samples. Table 6-1 reports statistics of the event. In the full sample, there are 5680 announcement disclosures, which contain 4920 containing positive news and 760 with negative news. In the pre-reform sample, the total number of announcement disclosures is 2301. It contains 1956 containing positive news and 345 with negative news. There are 3379 announcement disclosures in the post-reform sample. The number containing positive news is 2964 and the number with negative news is 415.

Table 6-1 Numbers of event

Panel A: Full sample	
All news	5680
Positive news	4920
Negative news	760
Panel B: Pre-reform	
All news	2301
Positive news	1956
Negative news	345
Panel C: Post-reform	
All news	3379
Positive news	2964
Negative news	415

To reduce the incidence of insider trading activities in Chinese market, the market watchdog is increasing the quality of market regulation (Zhao, 2010). One of its strategies is the new registration procedure. To register a trading account in a security exchange, individuals or institutions have to submit their ID information (China Securities Regulation Commission, 2006). Thus, corporate insiders will be monitored by the market regulatory agency if they want to trade shares on their account. However, the risk of being caught by the market regulator is still low (Huang, 2007). Thus, market participants in the Chinese

market are more focused on seeking the sources of inside information. This is the situation where traditional insiders leak information to third parties, who are related to traditional insiders. As mentioned in section 6.3, even in the developed market, the market watchdog cannot effectively monitor the transactions of third parties. The performance and efficiency of the Chinese market regulatory agency is weak (Shen, 2008). Thus, the regulatory agency of the Chinese securities market cannot effectively monitor third party transactions. Through third party transactions, the illegal profits made by traditional insiders will not be detected by the market regulatory agency. Thus, significant pre-announcement abnormal returns may reflect illegal insider trading activities.

If significant cumulative abnormal returns prior to an announcement date can be detected, it may suggest that the inside information has been leaked and may be associated with insider trading. In this thesis, event study is used to calculate the cumulative abnormal return around the earnings announcement date in the Chinese securities market. The event window is set from the day (-30) to the announcement date. The estimation window is the period covering the day (-231) to the day (-31).

Table 6-2 shows the results of information leakage that are calculated by the market model and the constant-mean-return model. Figures of panels A-1 to C-2 are calculated by the market-model. Figures of panels D-1 to F-2 are calculated by the constant-mean-return method.

Figures of panels A-1 and A-2 reflect the CARs in pre-announcement and post-announcement periods of the full sample. Under the column of all news, CAR (-30, -25) is 0.008681, and it has been increased to CAR (-30, 0) 0.020814 at announcement day. After the announcement day, the CAR (0, 5) is -

0.006766, and it is increased to CAR (0, 10) 0.000655 at day (10). Under the column of positive news, the CAR (-30, -25) is 0.0011642 and it has been increased to CAR (-30, 0) 0.035520. There is an upward trend in post-announcement information leakage under the column of positive news. CAR (0, 5) is -0.006191, and it has been increased to CAR (0, 10) -0.000021 at day (10). Under the column of negative news, CAR (-30, -25) is -0.009320, and it is decreased to CAR (-30, 0) -0.074386 at day (0). After the announcement day, the CAR (0, 5) is -0.010486, and it is increased to CAR (0, 10) 0.005028 at day (10).

Panels B-1 and B-2 show figures of the CARs in the pre-announcement and the post-announcement periods in the pre-reform sample. Under the column of all news, there is a downward trend in information leakage, since CAR (-30, -25) is 0.002493, and CAR (-30, 0) is -0.004385. In the post announcement period, CAR (0, 5) is -0.002449, and it is increased to CAR (0, 10) 0.007910 at day (10). Under the column of positive news, CAR (-30, -25) is 0.003674, and it is increased to CAR (-30, 0) 0.013810 at the announcement day. After the announcement day, CAR (0, 5) is 0.000024, and CAR (0, 10) is 0.008001. Under the column of negative news, there is a downward trend in information leakage. For instance, CAR (-30, -25) is -0.004203, and CAR (-30, 0) is -0.107540. After the announcement day, the CAR (0, 5) is -0.016466, and it is increased to (0, 10) 0.007394.

Panels C-1 and C-2 report CARs in the pre-announcement and the post-announcement periods of the post-reform sample. In the pre-announcement period, CAR (-30, -25) of all news is 0.012893, CAR (-30, -25) of positive news is 0.016599, and CAR (-30, -25) of negative news is -0.009320. CAR (-30, 0) of

all news is 0.020814, CAR (-30, 0) of positive news is 0.037970, and CAR (-30, 0) of negative news is -0.046825. In the post-announcement period, CAR (0, 5) of all news is -0.009703, CAR (0, 5) of positive news is -0.010290, and CAR (0, 5) of negative news is -0.005515. CAR (0, 10) of all news is -0.004284, CAR (0, 10) of positive news is -0.005312, and CAR (0, 10) of negative news is 0.003061.

Figures from panels D-1 and D-2 represent CARs in the pre-announcement and the post-announcement periods of the full sample. Under the column of all news, there is an upward trend in information leakage, since CAR (-30, -25) is 0.010699, and CAR (-30, 0) is 0.026225. In post-announcement period, CAR (0, 5) is 0.004931, and the CAR (0, 10) is 0.021598. Under the column of positive news, CAR (-30, -25) is 0.012628 and CAR (-30, 0) is 0.039274. After the announcement day, CAR (0, 5) is 0.005961, and CAR (0, 10) is 0.023088. Under the column of negative news, CAR (-30, -25) is -0.001790, and CAR (-30, 0) is -0.058250. After the announcement day, CAR (0, 5) is -0.001736, and CAR (0, 10) is 0.011953.

Panels E-1 and E-2 report CARs in the pre-announcement and the post-announcement periods in the pre-reform sample. Under the column of all news, CAR (-30, -25) is 0.000874, and CAR (-30, 0) is -0.004969. In the post-announcement period, CAR (0, 5) is 0.002019, and CAR (0, 10) is 0.018363. Under the column of positive news, CAR (-30, -25) is 0.001260, and CAR (-30, 0) is 0.002276. After the announcement day, CAR (0, 5) is 0.002126, and CAR (0, 10) is 0.016563. Under the column of negative news, CAR (-30, -25) is -0.001312, and CAR (-30, 0) is -0.046048. In the post-announcement period, CAR (0, 5) is 0.001414, and CAR (0, 10) is 0.028564.

Panels F-1 and F-2 report CARs in the pre-announcement and the post-announcement periods of the post-reform sample. Before the announcement day, CAR (-30, -25) of all news is 0.017389, CAR (-30, -25) of positive news is 0.02013, and CAR (-30, -25) of negative news is -0.002188. CAR (-30, 0) of all news is 0.047468, CAR (-30, 0) of positive news is 0.06369, and CAR (-30, 0) of negative news is -0.068394. In the post-announcement period, CAR (0, 5) of all news is 0.006914, CAR (0, 5) of positive news is 0.008492, and CAR (0, 5) of negative news is -0.004354. CAR (0, 10) of all news is 0.023801, CAR (0, 10) of positive news is 0.027393, and CAR (0, 10) of negative news is -0.001856.

Table 6-2 Cumulative Abnormal Returns (CARs)

$$AR_{i,t} = R_{i,t} - E[R_{i,t}] \quad CAR\ (t1, t2) = \sum_{t=t1}^{t2} (AR_t)$$

Day	Mean	t	Mean	t	Mean	t	Day	Mean	t	Mean	t	Mean	t
	All News		Positive News		Negative News			All News		Positive News		Negative News	
Panel A-1: CARs Pre-announcement							Panel D-1: CARs Pre-announcement						
(-30, -25)	0.009***	9.320	0.011***	11.333	-0.009***	-4.125	(-30, -25)	0.011***	9.252	0.013***	10.266	-0.002	-0.538
(-30, -20)	0.013***	9.831	0.018***	12.528	-0.019***	-6.034	(-30, -20)	0.012***	7.210	0.016***	9.068	-0.015***	-3.239
(-30, -15)	0.015***	8.835	0.021***	11.946	-0.029***	-7.048	(-30, -15)	0.017***	8.301	0.023***	10.280	-0.019***	-3.489
(-30, -10)	0.019***	9.826	0.027***	12.782	-0.031***	-6.599	(-30, -10)	0.024***	9.518	0.032***	12.126	-0.032***	-4.694
(-30, -5)	0.021***	9.294	0.033***	13.681	-0.054***	-8.810	(-30, -5)	0.023***	7.912	0.035***	11.128	-0.051***	-6.195
(-30, 0)	0.021***	8.286	0.036***	13.470	-0.074***	-10.816	(-30, 0)	0.026***	8.037	0.039***	11.346	-0.058***	-6.441
Panel A-2: CARs Post-announcement							Panel D-2: CARs Post-announcement						
(0,5)	-0.007***	-5.824	-0.006***	-5.082	-0.010***	-2.889	(0,5)	0.005***	3.612	0.006***	4.115	-0.002	-0.432
(0,10)	0.001	0.432	0.000	-0.013	0.005	1.061	(0,10)	0.022***	11.998	0.023***	12.141	0.012**	2.206
Panel B-1: CARs Pre-announcement							Panel E-1: CARs Pre-announcement						
(-30, -25)	0.002**	2.019	0.004***	2.719	-0.004	-1.402	(-30, -25)	0.001	0.907	0.001	0.907	-0.001	-0.366
(-30, -20)	-0.002	-1.459	0.000	0.066	-0.017***	-3.835	(-30, -20)	-0.001	0.186	0.000	0.186	-0.008*	-1.660
(-30, -15)	-0.004*	-1.790	0.000	0.173	-0.027***	-4.872	(-30, -15)	0.002	1.357	0.003	1.357	-0.005	-0.885
(-30, -10)	-0.001	-0.564	0.005	1.757	-0.035***	-5.887	(-30, -10)	0.008***	3.865	0.011***	3.865	-0.005	-0.702
(-30, -5)	-0.002	-0.748	0.011***	3.560	-0.076***	-8.953	(-30, -5)	0.002	2.155	0.007	2.155	-0.026***	-3.018
(-30, 0)	-0.004	-1.270	0.014***	3.941	-0.108***	-10.761	(-30, 0)	-0.005	0.676	0.002	0.676	-0.046***	-4.512
Panel B-2: CARs Post-announcement							Panel E-2: CARs Post-announcement						
(0,5)	-0.002	-1.431	0.000	0.014	-0.016***	-2.790	(0,5)	0.002	1.104	0.002	1.132	0.001	0.237
(0,10)	0.008***	3.415	0.008***	3.379	0.007	0.967	(0,10)	0.018***	7.412	0.017***	6.480	0.029***	3.604
Panel C-1: CARs Pre-announcement							Panel F-1: CARs Pre-announcement						
(-30, -25)	0.013***	9.797	0.017***	11.734	-0.014***	-4.124	(-30, -25)	0.017***	11.112	0.020***	11.112	-0.002	-0.411
(-30, -20)	0.023***	12.548	0.030***	14.709	-0.021***	-4.655	(-30, -20)	0.021***	10.132	0.026***	10.132	-0.020***	-2.784
(-30, -15)	0.027***	11.433	0.035***	13.831	-0.030***	-5.131	(-30, -15)	0.028***	10.851	0.036***	10.851	-0.031***	-3.498
(-30, -10)	0.033***	11.844	0.041***	13.879	-0.027***	-3.908	(-30, -10)	0.034***	11.615	0.046***	11.615	-0.054***	-4.947
(-30, -5)	0.037***	11.527	0.047***	13.882	-0.036***	-4.152	(-30, -5)	0.038***	11.225	0.054***	11.225	-0.072***	-5.442
(-30, 0)	0.038***	10.921	0.050***	13.494	-0.047***	-5.056	(-30, 0)	0.047***	12.129	0.064***	12.129	-0.068***	-4.811
Panel C-2: CARs Post-announcement							Panel F-2: CARs Post-announcement						
(0,5)	-0.010***	-6.200	-0.010***	-6.159	-0.006	-1.232	(0,5)	0.007***	3.588	0.008***	4.123	-0.004	-0.802
(0,10)	-0.004**	-2.147	-0.005**	-2.507	0.003	0.518	(0,10)	0.024***	9.476	0.027***	10.277	-0.002	-0.252
Where * is 10% significance level, ** is % significance level, and *** is 1% significance level.							Where * is 10% significance level, ** is % significance level, and *** is 1% significance level.						

Table 6-3 shows the portfolio run-up index of the full sample, the pre-reform sample, and the post-reform sample. Figures of panel A are calculated by the market model. Figures of panel B are based on the constant mean model.

Under the first column of panel A, from day (-30) to day (0), the run-up index has been increased from 2.234 to 118.517. After the announcement day, the run-up index has been increased from 105.133 at day (5) to 147.383 at day (10). Under the column of positive news in the full sample, there is an increase in the pre-announcement run-up index as it has been increased from 5.459 at day (-30) to 108.298 at day (0). At the post-announcement period, it has been increased from 105.164 at day (5) to 123.976 at day (10). The value of run-up index of negative news in full sample is 10.679 at day (-30), 92.280 at day (-1), 91.755 at day (0), 105.215 at day (5), and 86.078 at day (10). Figures of the run-up index of the pre-reform sample are shown in the fourth to the sixth columns. Under the column of all news, there is an increase in the run-up index. From day (-30) to day (0), it has been increased from -50.835 to 59.802. However, after the announcement day, it has been decreased to -85.906 at day (10). Under the column of positive news, the value of run-up index is 39.118 at day (-30), and it has been increased to 115.045 at day (0). After the announcement day, it has been increased to 212.800 at day (10). If it is negative news, there is also an upward trend in run-up index. It has been increased from 1.507 at day (-30) to 87.907 at day (10). In the post-reform sample, the run-up index of all news is -5.443 at day (-30), 126.055 at day (-1), 110.023 at day (0), 97.938 at day (5), and 113.641 at day (10). The run-up index of positive news in the post-reform sample is -0.272 at day (-30), 120.276 at day (-1), 107.149 at day (0), 98.155 at day (5), and 108.855 at day (10). If it is

negative news the run-up index will be 28.084 at day (-30), 88.581 at day (-1), 91.390 at day (0), 99.345 at day (5), and 82.607 at day (10). Figures in panel B are based on the constant mean model. Generally speaking, the trend of changes in value of run-up index of panel B is similar to that of panel A.

Table 6-3 Run-up index

	Full sample			Pre-reform			Post-reform		
Day	All news	Positive News	Negative News	All news	Positive News	Negative News	All News	Positive News	Negative News
Panel A: Market Model									
-30	2.234	5.459	10.679	-50.835	39.118	1.507	-5.443	-0.272	28.084
-25	49.430	34.946	11.496	-34.001	30.606	3.593	37.360	35.684	26.493
-20	73.774	54.570	23.477	33.736	0.998	14.686	67.977	63.687	40.159
-15	82.826	64.673	35.283	50.507	3.193	22.976	78.148	75.139	58.638
-10	108.021	81.334	38.128	18.626	38.392	30.128	95.089	88.646	53.311
-5	119.763	99.677	67.158	30.194	90.445	65.253	106.806	101.249	70.772
-4	126.751	106.590	73.949	43.011	98.666	75.396	114.637	107.938	71.202
-3	132.470	112.540	80.274	38.062	113.993	82.245	118.813	112.293	76.535
-2	140.231	119.134	84.977	30.267	128.451	87.399	124.324	117.548	80.382
-1	143.656	124.040	92.280	21.979	146.145	94.230	126.055	120.276	88.581
0	118.517	108.298	91.755	59.802	115.045	91.947	110.023	107.149	91.390
5	105.133	105.164	105.215	55.379	146.341	108.308	97.938	98.155	99.345
10	147.383	123.976	86.078	-85.906	212.800	87.907	113.641	108.855	82.607
Panel B: Constant-Mean-Return Model									
-30	1.809	2.237	3.623	-3.694	12.838	1.140	1.379	1.946	5.195
-25	40.987	32.013	2.970	-16.015	47.478	2.550	36.534	31.588	3.236
-20	45.738	40.709	24.431	16.623	14.106	15.887	43.464	41.440	29.838
-15	66.135	58.131	32.228	-38.055	126.266	9.990	57.996	56.259	46.300
-10	90.601	81.569	52.338	-150.782	395.768	9.024	71.744	72.933	79.749
-5	89.500	88.339	84.580	-29.652	245.061	50.671	80.192	84.031	106.038
-4	94.518	93.378	89.690	9.102	201.463	65.346	87.845	90.407	105.095
-3	100.796	98.302	90.229	21.886	194.921	72.480	94.632	95.646	101.461
-2	107.897	104.023	91.486	32.352	200.606	81.548	101.996	101.369	97.775
-1	113.960	109.537	95.222	47.090	199.680	91.705	108.737	107.060	97.448
0	100.466	99.562	96.633	91.014	85.756	89.476	99.728	99.941	101.163
5	132.782	124.596	98.101	10.110	279.779	88.958	123.199	120.331	103.887
10	196.656	168.032	75.392	-289.219	823.753	36.202	158.701	150.010	100.193

Table 6-4 reports the percentage of companies whose daily trading volume is significantly larger than the historical mean at 95 per cent confidence level. Panel A shows figures of the full sample. Panels B and C show figures of pre and post reform samples.

In panel A, there is an increase in the percentage of companies whose daily trading volume is significantly larger than the historical mean. 30 days prior

to the announcement day, there are only 11.7% of companies with a daily trading volume significantly larger than their historical mean. However, at day (-1), 19.58% of the companies have a daily trading volume that is significantly larger than the historical mean, and this has been increased to 23% 10 days after the announcement day. Under the column of positive news in panel A, 11.63% of companies have a daily trading volume that is significantly larger than the historical mean at day (-30). It is increased to 19.48% at day (1) and 26.21% at day (0). 10 days after the announcement day, 24.01% of companies have a daily trading volume that is larger than the historical mean. Under the column of negative news, 12.28% of companies have a daily volume that is significantly larger than the historical mean at day (30). At day (-1), 20.49% of companies have a daily volume that is larger than the historical mean. After the announcement day, there is an upward trend in the number of companies that show a daily volume larger than the historical mean, and this figure is increased to 25.3% 10 days after the announcement is released.

Under the column of all news in panel B, 11.72% of companies have a daily trading volume that is significantly larger than their historical mean at day (-30), and this figure is increased to 17.36% at day (-1). At day (0), 24% of companies have a daily trading volume that is significantly larger than the historical mean. 10 days after the announcement day, this figure is increased to 24.85 %. Under the column of positive news, 11.70% of companies have a trading volume that is greater than the historical mean 30 days prior to the announcement day. At day (-1), this figure is increased to 18.75%. After the announcement, the figure is increased to 23.96% at day (10). If it is negative news, 8.52% of companies have a daily trading volume that will be significantly larger than the historical mean 30 days before the announcement. At day (-1)

the figure is increased to 6.79%, and it is increased to 27.94% at day (0). After the announcement day, there is an upward trend in this figure, and it is increased to 30.8% at day (10).

Figures of panel C represent the post-reform sample. Under the column of all news, 11.70% of companies have a daily trading volume that is significantly larger than the historical mean at day (-30), and it is increased to 21.01% at day (-1). After the announcement day, the figure is decreased from 27.58% at day (0) to 23.71% at day (10). Under the column of positive news, there is an upward trend in the percentage of companies that have a daily trading volume that is larger than the historical mean. At day (-30), the figure is 11.00% and it is increased to 20.71% at day (-1). After the announcement day, there is a downward trend in this figure. It decreases from 27.63% at day (0) to 22.27% at day (10). Under the column of negative news, 15.54% of companies have a daily trading volume that is significantly larger than the historical mean 30 days before the announcement day. At day (-1), 23.41% of companies have a daily trading volume that is larger than the historical mean. At day (0), 26.94% of companies have a daily trading volume that is significantly greater than the historical mean, but this percentage is decreased to 20.91% at day (10).

Table 6-4 Normalized Abnormal Volume (NAV)

$$NAV_{i,t} = \frac{TV_{i,t} - \mu_{i,t}}{\sigma_{i,t}}$$

Where $\mu_{i,t}$ is the mean of log volume for each firm *i* over the clean period:

$$\mu_{i,t} = \frac{1}{200} \sum_{t=-200}^{-31} \log(\text{Volume}_{it})$$

And $\sigma_{i,t}$ is the standard deviation of the mean log volume,

$$\sigma_{i,t} = \sqrt{\frac{1}{199} \sum_{t=1}^{200} (TV_{i,t} - \mu_{I,T}^{TV})^2}$$

The clean period is (-230, -31), and the event window is (-30, 0)

Day	NAV: All News	Percent different from mean volume at 95 percent confidence level	NAV: Positive News	Percent different from mean volume at 95 percent confidence level	NAV: Negative News	Percent different from mean volume at 95 percent confidence level
Panel A: Full sample						
-30	0.325	11.70%	0.325	11.63%	0.327	12.28%
-25	0.378	12.83%	0.377	12.52%	0.387	15.05%
-20	0.388	10.98%	0.383	12.95%	0.424	13.81%
-15	0.430	13.61%	0.419	13.52%	0.506	14.31%
-10	0.456	16.34%	0.436	15.92%	0.598	19.49%
-5	0.499	17.36%	0.479	16.66%	0.648	23.53%
-4	0.525	17.33%	0.503	16.72%	0.685	21.80%
-3	0.545	18.14%	0.521	17.51%	0.722	22.82%
-2	0.573	18.96%	0.556	18.64%	0.701	21.35%
-1	0.649	19.58%	0.633	19.48%	0.765	20.49%
0	0.730	26.31%	0.736	26.21%	0.674	27.44%
5	0.702	22.33%	0.686	21.85%	0.822	25.95%
10	0.729	23.00%	0.713	24.01%	0.853	25.30%
Panel B: Pre-reform						
-30	0.328	11.72%	0.377	11.70%	0.155	8.52%
-25	0.234	9.34%	0.260	9.26%	0.037	9.85%
-20	0.285	9.82%	0.300	9.93%	0.162	8.52%
-15	0.376	11.76%	0.379	12.60%	0.359	12.45%
-10	0.438	14.15%	0.433	14.83%	0.495	14.29%
-5	0.480	15.30%	0.487	15.23%	0.462	16.12%
-4	0.501	13.66%	0.507	14.47%	0.472	14.29%
-3	0.539	15.32%	0.539	15.73%	0.573	17.65%
-2	0.594	16.83%	0.592	17.81%	0.622	18.28%
-1	0.714	17.36%	0.710	18.75%	0.734	16.79%
0	0.933	24.00%	0.925	25.64%	1.022	27.94%
5	0.789	22.64%	0.774	22.04%	0.904	25.97%
10	0.844	24.85%	0.820	23.96%	1.035	30.80%
Panel C: Post-reform						
-30	0.333	11.70%	0.344	11.00%	0.251	15.54%
-25	0.469	15.07%	0.447	14.57%	0.641	18.96%
-20	0.453	15.11%	0.433	14.77%	0.611	17.73%
-15	0.463	14.80%	0.444	14.50%	0.612	17.08%
-10	0.467	17.82%	0.440	17.04%	0.673	24.02%
-5	0.512	19.40%	0.477	18.15%	0.785	29.41%
-4	0.541	19.69%	0.502	18.60%	0.840	28.41%
-3	0.549	19.96%	0.513	19.01%	0.830	27.58%
-2	0.560	20.33%	0.535	19.85%	0.758	24.29%
-1	0.608	21.01%	0.585	20.71%	0.787	23.41%
0	0.625	27.58%	0.638	27.63%	0.513	26.94%
5	0.648	22.17%	0.633	21.69%	0.765	26.24%
10	0.657	23.71%	0.649	22.27%	0.720	20.91%

6.7. Cases of insider trading

During the 2004 to 2008, there were two reported cases and one suspected case of insider trading according to the annual reports of the listed companies. One is the case of Hai Shen Pan (Da Tang Dian Xin 600198).The other is the case of Xin Qi She (Si Chuan Sheng Da 000835). The suspected case is the case of Li Li (600031 San Yi Zhong Gong).

6.7.1. The case of Xin Qi She (Si Chuan Sheng Da 000835)

The company asked its external audit company to audit the accounting information for the year 2006, between 8-Jan-2007 and 24-Jan-2007. The draft of annual report was generated on 3-Feb-2007. On 9-Feb-2007, the company's board of directors held its meeting to review and audit the content of the annual report. On 16-Feb-2007, this company disclosed its 2006 annual report to the market.

Xin Qi She was the CEO and a director of this company. He attended the meeting of the board of directors to review and audit the draft 2006 annual report. During this meeting, members of the board of directors received the news from the draft annual report that there had been an increase in revenue in 2006. This was positive news, which would increase the stock price of the company after disclosure to the market. Knowing this, Xin Qi She purchased shares in the company prior to the announcement date. The Administrative Sanction of the CSRC indicated that to avoid being detected by the market watchdog, Xin Qi She did not use his own account for this purchase (Chen *et al.*, 2009). The investigation by the CSRC indicates that he used another person's account to complete his transaction. The original owner of this account had died,

it had been controlled by Mr. She. Using this account, this ensured that his illegal transaction could avoid being detected by the regulators. Thus, he purchased the shares before the information disclosure and sold them on the day of the information disclosure. His activities broke the regulations on insider trading which prohibit insiders from trading the company shares using non-public information. Additionally, the investigation of the CSRC found that this inside information had been leaked to his affiliated investors. Thus, he broke the rule prohibiting insiders from persuading other investors to trade shares of their company. The CSRC decided the final total penalty for this case was RMB 312,302.76 (£31,000).

Figures of table 6-5 indicate that after the end of annual report preparation in 2007, there is an increase in CARs. The CAR has increased from 0.1805 to 0.2329 during day (-15) to day (-12). After the meeting of the board of directors, the CARs also appear on an upward trend. The CAR at day (-5) is 0.1411, and it has increased to 0.23333 at day (-3). Finally, after Xin Qi She's share purchase, there is an increase in CARs. The CAR at day (-2) is 0.2521 and it has increased to 0.3312 at the day before the announcement day. Because the information is leaked by corporate insiders, there is an increase in CARs after the trading of those insiders. It is possible that the inside information leaked to the market through other channels besides Mr. She, as after the board meeting there is also an increase in CARs. This suggests that other directors who attended the board meeting may have also leaked information to the market prior to the announcement date. Figures in the fourth and the fifth column also indicate that insider trading and information leakage will affect market activities. As the CARs increase, the NAV and run-up index also increases. From day (-16) to day (-12), the NAV has increased from 1.5927 to 3.1326. This means that the

trading volume during these days is significantly larger than the historical mean. From day (-4) to day (-1), the NAV also experiences an increase. The value of NAV has increased from 1.5338 to 2.4600. During the day (-15) to day (-12), the run-up index of this company has increased from 39.0791 to 55.1361. From 5 days prior to the announcement day, the run-up index also experiences another increase, from 33.4014 to 78.3828. Changes in NAV before the announcement day suggest that there are reasons for that change in trading volume. Additionally, changes in the run-up index show that the content of the forthcoming corporate disclosure may be being incorporated into the stock price prior to the announcement day.

Table 6-5 Case of Xin Qi She

Day	Event	CARs	NAV	Run-up index
-30		-0.0547	-0.1859	-12.9482
-29	Start of preparation	-0.0497	1.3339	-11.7589
-28		-0.0473	1.4299	-11.1851
-27		-0.0699	1.3547	-16.5523
-26		-0.0521	1.5203	-12.3410
-25		-0.0318	1.3429	-7.5211
-24		-0.0498	1.3277	-11.7847
-23		-0.0894	0.9460	-21.1583
-22		-0.0864	1.3426	-20.4493
-21		-0.0645	0.8288	-15.2730
-20		-0.0413	1.7266	-9.7859
-19		0.0369	2.3790	8.7345
-18		0.1057	2.4967	25.0155
-17	End of preparation	0.0902	1.1335	21.3387
-16		0.1652	1.5927	39.0971
-15		0.1805	2.9067	42.7232
-14		0.2319	2.3005	54.8794
-13		0.2234	2.0108	52.8815
-12		0.2329	3.1326	55.1361
-11		0.1449	2.1375	34.3072
-10		0.1149	1.7275	27.1920
-9	The draft finished on 3-Feb-2007	0.1299	0.8719	30.7361
-8		0.1513	0.5848	35.8051
-7		0.1471	0.7052	34.8073
-6		0.1374	0.6940	32.5236
-5	Board meeting	0.1411	0.7947	33.4014
-4		0.2160	1.5338	51.1329
-3		0.2333	1.8822	55.2242
-2	Purchase of Mr. She	0.2521	1.7123	59.6642
-1		0.3312	2.4600	78.3828
0	Announcement & sale of Mr. She	0.4124	2.4953	97.6228

6.7.2. The case of Hai Shen Pan (Da Tang Dian Xin 600198)

The 2006 annual report of this company was prepared from February to March of 2007. On 4-Apr-2007, the secretary to the board of directors informed members of the board the result of the 2006 annual report. On 27-Apr-2007, the company disclosed its 2006 annual report to the market. Before this disclosure of the earnings announcement, this company reported a gain in its performance forecasting. However, the earnings announcement indicated that the company had made a huge loss in 2006. Thus, there was an opportunity for insiders to benefit from insider trading.

According to the Administrative Sanction of the CSRC, Hai Shen Pan used to be director of Da Tang Dian Xin and a member of the audit committee of this company (Qu and Wang, 2005). Due to his position in the company, he knew about the huge loss in 2006 and wished to avoid a personal loss, which would result from a decrease in stock price after the negative news was disclosed. To avoid this loss, he sold all the company shares in his account prior to the announcement date. He then told the CSRC that this transaction was an error. However, the CSRC rejected his explanation since there was no evidence to support his argument. At the same time, the CSRC found that he had leaked the negative news to his affiliated people prior to the announcement date. His activities had broken the relevant rules on insider trading in the Chinese securities market. Insiders are prohibited from trading shares using inside information, and insiders are also prohibited from persuading other investors to trade shares of the company. Thus, because of his activities, the CSRC decided to impose a penalty of RMB 30,000 (£3,000).

Figures of table 6-6 indicate that there are decreases in CARs after the secretary's notification and the sale of shares by Hai Shen Pan. From day (-6) to day (-2), the CAR has decreased from -0.1549 to -0.2218. The decrease in CARs after the sales transaction may prove that Mr. Pan leaked the negative news to some investors in advance. Additionally, figures in table 6-4 indicate that after the information has been released internally, there is also a decrease in CARs. From day (-17) to day (-10), the CAR has decreased from -0.1400 to -0.2651. This suggests that besides Hai Shen Pan, the inside information was leaked to the market by other people who knew the content of corporate annual report. Figures of NAV indicate that there is increase in trading volume prior to the announcement day. For instance, after the internal audit, the NAV is increased. From day (-19) to day (-10), the NAV has increased from -0.4805 to 1.8243. After the sale of shares by Mr. Pan, there is also an increase in NAV. From day (-8) to day (-5), NAV has increased from 1.9457 to 2.3905. Thus, this may prove that the detected and the undetected insider trading will change the trading volume prior to the corporate announcement. The figures of the run-up index also report an upward trend prior to the announcement day. After the internal notification of the audit result, this company experiences an increase in the run-up index. From day (-19) to day (-10), the run-up index has increased from 99.0447 to 216.0093. After sales by the insider, there is another increase in the company's run-up index. From day (-9) to day (-3), the value of the run-up index has increased from 153.3338 to 214.6165. To some extent, this means that information has leaked to the market and that the market participants have reacted and traded shares based on the leaked information.

Table 6-6 Case of Hai Shen Pan

Day	Event	CARs	NAV	Run-up index
-30		-0.006	0.576	4.553
-29		-0.042	0.493	33.934
-28		-0.035	0.178	28.464
-27		-0.001	-0.333	0.819
-26		-0.022	0.482	17.747
-25		-0.014	-0.334	11.326
-24		-0.004	0.937	3.539
-23		-0.011	-0.032	9.135
-22		-0.067	-0.374	54.629
-21		-0.111	-0.032	90.406
-20	The internal audit/draft of 2006 annual report was finished at Mar of 2007	0.119	-0.960	96.583
-19		-0.122	-0.481	99.045
-18		-0.138	2.493	112.415
-17	Internal inform about the result of audit/draft of 2006 annual report	-0.140	2.537	114.053
-16		-0.250	1.613	203.708
-15		-0.255	1.384	207.715
-14		-0.292	1.295	238.097
-13		-0.321	1.762	261.789
-12		-0.310	1.818	252.680
-11		-0.294	1.828	239.226
-10		-0.265	1.824	216.009
-9	Sale of Mr. Pan	-0.188	1.835	153.334
-8		-0.194	1.946	158.273
-7		-0.196	2.382	159.969
-6		-0.155	2.187	126.156
-5		-0.226	2.391	183.807
-4		-0.259	1.441	211.002
-3		-0.263	1.684	214.617
-2		-0.222	1.459	180.677
-1		-0.154	1.689	125.427
0	Announcement	-0.150	1.971	122.211

6.7.3. The case of Li Li (San Yi Zhong Gong 600031)

Ms Li Li is a member of staff of the CSRC. On 8th of March 2007, the company, San Yi Zhong Gong, disclosed its 2006 annual report to the market. However, it was reported in the media that one day before the announcement, there was message from Ms Li's phone to her mother. The content of this message was that the earning per share of this company in 2006 would be RMB1.16, and the dividend per share would be RMB 2. After the company announcement , the content of the message was found to be exactly similar to that of the company's disclosure (Xia, 2010). This activity was discovered by Ms Li's mother in law, who reported it to the media and the CSRC. Thus, market participants suspected that Ms Li Li had breached the regulation prohibiting insider trading in the Chinese market, since she is defined as an insider and she persuaded other investors to trade shares on non-public information. However, Ms Li Li denied this charge. Although this suspected case happened in 2007, the CSRC promised to investigate the case in 2010. After a short investigation, the CSRC declared that there was no evidence to prove that Ms Li's mother traded shares using non-public information(Shen, 2010). Additionally, the CSRC also declared that there was no evidence to prove that Ms Li had been involved in insider trading activities.

There is no increase in CARs prior to the announcement in table 6-7. Figures under the column of NAV in table 6-7 indicate that the trading volume of this company is not significant larger than the historical mean during the pre-event period. Figures under the column of the run-up index also indicate that

the announcement information is not incorporated into stock price before the announcement. Figures of table 6-7 suggest that there is no evidence of information leakage prior to the announcement.

Overall, the first two reported cases reveal that corporate insiders of these Chinese listed companies used their information advantage to maximize their profit and minimize their loss. After the transactions by insiders, there are increases (decreases) in CARs, run-up index, and NAV. This suggests that insiders may leak information to their affiliated people and these people adopt the same trading pattern. Additionally, figures of both tables indicate that inside information may be leaked to the market through other channels, such as the undiscovered insiders. After the internal notification, there are changes in CARs, NAV, and run-up index. This suggests that inside information may be being leaked to the market by a range of people who are in receipt of the same information.

Table 6-7 Case of Li Li

Day	Event	CARs	NAV	Run-up index
-30		0.0086	0.5501	0.8292
-29		-0.0085	-0.9232	-0.8223
-28		-0.0345	-0.5416	-3.3283
-27		0.0025	0.4769	0.2384
-26		-0.0071	0.3093	-0.6895
-25		-0.0155	-0.2095	-1.4985
-24		-0.0518	-0.2859	-5.0037
-23		-0.0294	0.4191	-2.8328
-22		-0.0599	0.3776	-5.7785
-21		-0.0238	-0.6909	-2.2954
-20		0.0042	-0.2254	0.4081
-19		0.0132	-0.7045	1.2718
-18		-0.0160	-0.8934	-1.5484
-17		-0.0345	-1.0418	-3.3306
-16		-0.0638	-0.5259	-6.1543
-15		-0.0968	1.3132	-9.3381
-14		-0.0027	1.4816	-0.2600
-13		-0.0064	1.3256	-0.6203
-12		-0.0102	0.9786	-0.9806
-11		-0.0139	1.1231	-1.3409
-10		-0.0176	0.6701	-1.7011
-9		-0.0214	0.7979	-2.0614
-8		-0.0890	0.8839	-8.5912
-7		-0.0858	0.8025	-8.2848
-6		-0.1573	0.2839	-15.1828
-5		-0.1074	-0.2110	-10.3670
-4		-0.0950	-0.5216	-9.1686
-3		-0.0002	0.4984	-0.0195
-2		-0.0272	0.1071	-2.6297
-1	Suspected information leakage	0.0275	0.0816	2.6575
0	Announcement day	0.0448	0.4400	4.3193

6.8.   Discussion and conclusion

The results in panels A-1 and D-1 in table 6-2, which represent the sample of all news, indicate that the content of a corporate earnings announcement of Chinese listed companies will affect their stock price prior to the disclosure date. Figures for all news, positive news and negative news indicate that the information leakage is very significant. Before market reform, the results of panel B-1 and panel E-1 in table 6-2 show that the information leakage of all news is not significant, but that the information leakage of positive news and negative news is significant. The CAR (0, 10) of all news, positive news, and negative news is significant. After market reform, figures of panels C-1 and D-1 in table 6-2 indicate that more information leakage is significant in the column of all news, positive news, and negative news.

Market reform removed the trading restrictions on the majority of shares in Chinese listed companies. Thus, more shares can be floated in the securities market. This increases market liquidity and reduces the transaction cost of the Chinese securities market. The increase in market liquidity creates opportunities for investors to complete transactions in a short time. This is important to investors who are able to access non-public information. Thus, if non-public information is leaked to the market prior to the announcement day, it may increase (decrease) the CARs prior to the positive (negative) news. The significant abnormal returns prior to the corporate announcement may be as a result of the widespread information leakage in Chinese securities market.

If this is the case, the profitability of insider trading will be increased, since more shares will be floated on the market. Additionally, the market reform has

attracted more investors to enter the securities market. The majority of the investors are individual and small investors, and they lack investment experience (Zhang *et al.*, 2010). These investors will be more easily expropriated by illegal trading activities. Thus, the insider trading activities will be more attractive to the investors who have access to non-public information. An increase in significant information leakage might cause an increase in insider trading activities in Chinese securities market.

Results from table 6-3 indicate that there is a significant increase in the run-up index prior to the announcement day. This may reflect the fact that before the earnings announcement is disclosed to the market, some market participants may receive the information and trade shares using this information. The figures from the run-up index for post-announcement indicate that the run-up index remains stable. To some extent, it may mean that the remaining market participants who do not have access to the information of forthcoming announcements begin to trade shares. Compared with the pre-reform sample, figures from the run-up index post-announcement, in the post-reform sample, are lower than those in the pre-reform sample. As a result of the elimination of non-tradable shares, the market liquidity of the Chinese securities market has increased. To some extent, this reduces transaction costs in the market. Under this circumstance, investors who have access to the information of a forthcoming announcement may be more likely to react and trade shares prior to the announcement date. Thus, very few market participants react and trade shares on information after the announcement date.

Overall, the run-up index of table (6-3) indicates that before the announcement date, information of corporate announcement might be leaked to

the market, and this leaked information may be incorporated into the stock price. To some extent, this phenomenon might comply with the definition of insider trading, since the investors are using non-public information to trade stocks prior to public disclosure.

Figures of table 6-4 indicate that, in the pre-announcement period, there is an upward trend in the percentage of companies that have a daily trading volume that is significantly larger than the historical mean. After the announcement, due to the information disclosure, market participants begin to react and trade shares; thus, the trading volume of companies is significantly larger than the historical mean.

The increase in NAV before the announcement day means that market participants begin to trade shares of listed companies before the news is released to the market. Because of the low quality of the information environment, there is serious information asymmetry in the Chinese securities market. Under this circumstance, the investors that have the ability to access the accurate, non-public, information will perform better than the other participants in the market. Thus, if investors have non-public information, they will trade shares before the market knows this news, to gain the value of non-public information exclusively. Thus, the increase in NAV before the announcement day suggests that some investors with information prior to the announcement trade shares based on that information. This practice complies with the definition of an illegal insider trading practice, where traders exchange shares based on the non-public information. Thus, the increase in NAV prior to the announcement day may indicate that there are insider trading activities in the Chinese securities market.

The results from tables 6-5 and 6-6 indicate that insider transactions will trigger changes of CARs in the Chinese securities market, since insiders leak the content of annual reports to their affiliated investors prior to the corporate disclosure date. The investors who receive the information will trade shares using this information before the corporate announcement date. Both of the cases cited indicate that the insiders are intentionally concealing their trading activities from the market regulatory agency. Figures from tables 6-5 and 6-6 also indicate that besides those caught for insider trading activities; the information might be leaked to the securities market through other, unobserved, channels. After the internal information exchange there are changes in CARs. This suggests that inside information may be being leaked to the market by other people who participate in the internal information exchange. Due to the low regulatory efficiency of the CSRC, the significant information leakage may be the result of unobserved information leakage, which is caused by undetected insider trading activities. Additionally, the run-up index and NAV of both reported cases of insider trading also indicate that the information about the corporate announcement may be leaked to the market prior to the public disclosure. As CAR changed, the NAV and run-up index increased. Thus, these two measures also suggest that there may be insider trading activities in Chinese securities market. Although the second company disclosed the performance forecasting to inform the market, this could not effectively reduce information asymmetry between the company and investors. Thus, there were still profitable opportunities for insider trading in this company.

In a survey, Huang (2007) indicates that illegal insider trading activity is serious in the Chinese securities market, and that the majority of market participants believe that insider trading is widespread. He indicates that the

scope of insiders in Chinese securities is large, and thus the insider network of the Chinese securities market is very complex. This will make it very difficult for the market regulator to effectively regulate illegal insider trading activities.

The significant information leakage, increase in run-up index and NAV suggest that the content of corporate disclosure might be leaked to the market in advance. This will generate the opportunity for some investors to abuse the information and expropriate the rights of other shareholders. According to the characteristic of insider trading in the Chinese securities market, i.e. information leakage (cs.com.cn, 2010), an increase in the quality of information transparency will decrease information leakage and might reduce illegal insider trading activities.

To increase the quality of information transparency, one possible solution is to increase the quality of the corporate governance in companies. The purpose of a corporate governance mechanism is to help the shareholder monitor the activities of the listed companies. A good corporate governance mechanism will motivate companies to increase the quality of information disclosure (Ho and Wong, 2001; Chen *et al.*, 2007a). Better information disclosure will reduce the information asymmetry between companies and shareholders. Thus, to reduce information leakage that might result from leakage by corporate insiders, Chinese listed companies should increase the quality of corporate governance and thus reduce information asymmetry between companies and shareholders.

In this chapter, the extent of information leakage in Chinese securities market has been empirically evaluated. One of objectives of the thesis is to evaluate the effects of corporate governance on information leakage. Thus, it is

useful to measure the problem in the Chinese market. In next chapter, the relationship between corporate governance and information leakage will be empirically examined and discussed.

Chapter 7. Corporate governance and information leakage

7.1. Introduction

In Chapter 6, the problem of information leakage in the Chinese market is empirically evaluated. The purpose of this chapter is to evaluate and discuss the relationship between the corporate governance mechanism and information leakage in Chinese listed companies. Because of the influence of the state, the full sample will be divided into a sample of state owned listed companies and one of private listed companies. From the end of 2005, there was a series of market reforms in the Chinese securities market. Thus, the regression models also consider the influence of these market reforms on the relationship between corporate governance mechanism and information leakage.

Balasubramanian *et al. (*2010) indicate that firm size will determine the quality of the corporate governance mechanism in emerging markets. Large companies tend to adopt a good corporate governance mechanism, which then reduces the information asymmetry between companies and shareholders. The empirical results of this chapter indicate that there is a negative relationship between firm size and information leakage in the Chinese listed companies.

The proportion of non-tradable shares limits the extent to which the market mechanism can impact on listed companies (Tomasic and Fu, 2006). Thus, the

abolition of non-tradable shares will reduce information asymmetry, and lower the cumulative abnormal returns. However, in generally, the empirical results of this chapter indicate that the proportion of tradable shares (LNTPER) does not affect information leakage. As discussed in section 5.5.2.1, the abolition of non-tradable shares will exacerbate the problem of the free-rider, since the majority of Chinese investors are individual investors (Zhang *et al.*, 2009). This widespread ownership structure will exacerbate the problem of the free-rider and increase information asymmetry, which in turn may increase information leakage. However, the absence of non-tradable shares will provide the market mechanism with better opportunities to influence the listed companies. This will help Chinese listed companies to reduce information asymmetry and reduce information leakage. Thus, the elimination of non-tradable shares will have mixed effects on information leakage in Chinese listed companies.

State ownership increases information asymmetry (Choi *et al.,* 2010) and reduces the regulatory efficiency of the Chinese securities market (Berkman *et al.,* 2009). However, the empirical results indicate that the proportion of state ownership (SPER) does not affect information leakage in the Chinese securities market. On the one hand, Li *et al.* (2005) indicate that state shareholders are less likely to expropriate the right of small shareholders. On the other hand, the proportion of state ownership is small in private companies. Under this circumstance, state ownership will not be able to influence information leakage in Chinese listed companies.

Although ownership concentration will exacerbate the conflict of interest between large shareholders and small shareholders (Anderson and Reeb, 2004; López-de-Foronda *et al.*, 2007), the empirical results of this chapter

indicate that ownership concentration does not affect information leakage in Chinese listed companies in generally. On the one hand, the inappropriate ownership concentration exacerbates the information asymmetry between companies and investors (Faccio *et al.*, 2001; López-de-Foronda *et al.*, 2007), thereby increasing information leakage. However, on the other hand, ownership concentration will reduce the conflict of interest between shareholders and executives in Chinese listed companies, since the majority of Chinese investors are individual investors (Zhang *et al.* 2010). Thus, ownership concentration will reduce the information leakage. Under this circumstance, the ownership concentration will have no significant effect on information leakage in Chinese listed companies.

In general, the effect of the proportion of institutional ownership (LNTINTPER) on information leakage is not significant. Before market reform, the ownership structure of Chinese listed companies led to institutional investors having few opportunities to influence firm management (Su, 2005). Thus, they were more likely to abuse their privileged information and capital advantage to expropriate the right of small shareholders and increase their wealth (Yue, 2005). Market reform removed trading restrictions on the shares of Chinese listed companies, and thus, institutional investors are more able to influence those companies. Lin *et al. (*2007) indicate that institutional investors will drive companies to increase corporate transparency and reduce information asymmetry. They will impose more supervisory pressure on Chinese listed companies to motivate them to increase the quality of their corporate governance mechanism, thereby having a negative effect on information leakage. Thus, in general, the institutional ownership does not affect information leakage in Chinese listed companies.

The composition of the board of directors and the board of supervisors is influenced by the interests of large shareholders, especially majority (holding) shareholders (Rajagopalan and Zhang, 2008; Zhou, 2009). Because of this, neither boards of directors nor boards of supervisors can properly influence information asymmetry in listed companies, and therefore they have no significant effect on information leakage. The empirical results indicate that neither the board of directors nor the board of supervisors (LNBSIZE, INDPER, ROLESEP, and LNSSIZE) affect information leakage in Chinese listed companies.

Board subcommittees (DUAC, DUCC, and DUNC) have negative effects on information leakage. Figures of table 4-1 indicate that Chinese listed companies are establishing board subcommittees. As a consequence of this, there will be more opportunities to affect the quality of corporate governance mechanisms of Chinese listed companies. Thus, there is a negative relationship between board subcommittees and information leakage.

There is a negative relationship between the dummy variable of market reform (DUREFORM) and information leakage This means that the information leakage in the post-reform period will be more serious than that in the pre-reform period. Market reforms have increased market liquidity in the Chinese market since more shares have been released into it. However, the unsophisticated corporate governance mechanism and market regulation mechanism lead to the greater profitability of market fraud. Thus, there is more information leakage in Chinese market.

7.2. Regression model

The purpose of this chapter is to test the empirical relationship between the information leakage and the corporate governance mechanism in Chinese listed companies. This chapter adopts the following regression model to test the empirical relationship.

Information leakage = α + β₁LNBV + β₂LNTPER + β₃1STPER + β₄SPER + β₅LNTINTPER + β₆LNBSIZE + β₇INDPER + β₈ROLESEP + β₉LNSSIZE + β₁₀DUAC + β₁₁DUCC + β₁₂DUNC + β₁₃ DUREFORM +ε

LNBV: log form of total asset of the listed companies.
LNTPER: log form of proportions of the tradable shares of the ownership structure of Chinese listed companies.
1STPER: proportions of shareholdings of the largest shareholder.
SPER: the total state ownership.
LNTINTPER: log form of the proportions of tradable institutional ownership.
LNBSIZE: log form of the number of directors on the board of Chinese listed companies.
LNSSIZE: log form of the number of members of the board of supervisors.
INDPER: proportion of the independent directors on the board.
ROLESEP: if CEO and Chairman is not the same individual =1, otherwise =0.
DUAC: if the company establish audit committee =1, otherwise=0.
DUCC: if the company establish compensation committee =1, otherwise=0.
DUNC: if the company establish nomination committee =1, otherwise=0.
DUREFORM: if the year is 2004 and 2005 = 1, otherwise = 0.

Indicator of information leakage - Cumulative Abnormal Return (CAR)

Previous studies of the Chinese securities market use event study to measure the cumulative abnormal return prior to the announcement date of mergers and acquisitions (Shi and Jiang, 2003; Yan and Zhao, 2006). They found that there are significant CARs prior to the corporate announcement date. Thus, they suggest that this means that the inside information of companies might be leaked to the market prior to the announcement date, and that this may suggest that there is insider trading activity. Because of the importance of an earnings announcement, its content will be material to and will influence the stock price (Hung and Trezevant, 2007). Thus, in this thesis, the corporate

earnings announcement is selected as the event and the abnormal returns prior to the announcement date will be calculated. As mentioned above (section 4.5.1), the event window in this thesis from the day (-30) to day (0). Thus, the CAR (-30, 0) is the dependent variable of the regression model, which is employed to analyse the relationship between the corporate governance mechanism and pre-announcement abnormal returns in the Chinese securities market.

Control variable – firm size (LNBV)

Lakonishok *et al.*(2001) state that the stock pricing of large firms is more efficient than that of small firms, since large firms have low information asymmetry. Research findings show that a better corporate governance mechanism promotes voluntary information disclosure, which will reduce the information asymmetry between companies and shareholders (Gibbins *et al.*, 1990; Bujaki and McConomy, 2002; Lakhal, 2003). To reduce information asymmetry and thereby reduce information leakage, companies are advised to have a good governance mechanism. Balasubramanian *et al.* (2010) state that in the emerging markets, firm size is positively related to the quality of the corporate governance mechanism of companies. Xiao and Yuan (2007b) find that large firms in the Chinese market are more motivated to increase the quality of corporate information disclosure. Thus, the control variable of this regression is firm size.

The table 4-2 of Chapter 4 detects the high correlation between variables. Thus the initial regression model will be divided into the following model to reduce the influence of multicollinearity on estimations.

M1: *Information leakage = α + β_1LNBV + β_2 1STPER + β_3 LNTINTPER + β_4 LNTPER + β_5 INDPER + β_6 LNBSIZE + β_7 ROLESEP + β_8 DUAC + β_9 LNSSIZE + β_{10} DUREFORM + ϵ*

M2: *Information leakage = α + β_1LNBV + β_2 1STPER + β_3 LNTINTPER + β_4 LNTPER + β_5 INDPER + β_6 LNBSIZE + β_7 ROLESEP + β_8 DUCC + β_9 LNSSIZE + β_{10} DUREFORM + ϵ*

M3: *Information leakage = α + β_1LNBV + β_2 1STPER + β_3 LNTINTPER + β_4 LNTPER + β_5 INDPER + β_6 LNBSIZE + β_7 ROLESEP + β_8 DUNC + β_9 LNSSIZE + β_{10} DUREFORM + ϵ*

M4: *Information leakage = α + β_1 LNBV + β_2 SPER + β_3 LNTINTPER + β_4LNTPER + β_5INDPER + β_6LNBSIZE + β_7ROLESEP + β_8DUAC + β_9LNSSIZE + β_{10} DUREFORM + ϵ*

M5: *Information leakage = α + β_1 LNBV + β_2 SPER + β_3 LNTINTPER + β_4LNTPER + β_5INDPER + β_6LNBSIZE + β_7ROLESEP + β_8DUCC + β_9LNSSIZE + β_{10} DUREFORM + ϵ*

M6: *Information leakage = α + β_1 LNBV + β_2 SPER + β_3 LNTINTPER + β_4LNTPER + β_5INDPER + β_6LNBSIZE + β_7ROLESEP + β_8DUNC + β_9LNSSIZE + β_{10} DUREFORM + ϵ*

In following sections, empirical results will be listed and discussed.

7.3.   Empirical results

In this section, the empirical results concerning the relationship between corporate governance mechanism and information leakage in the Chinese securities market are reported. The figures of tables 7-1 to 7-3 are calculated by the market model. The figures of tables 7-4 to 7-6 are calculated by the constant-mean-return model.

Figures of table 7-1 show the relationship between the corporate governance mechanism and the cumulative abnormal returns that is calculated by the market-model in the full sample. Firstly, the firm size (LNBV) has a negative effect on the CARs. Ownership concentration and state ownership (1STPER and SPER) do not affect CARs in the full sample. Proportions of institutional ownership and proportions of tradable shares (LNTINPER and LNTPER) have a negative effect on CARs. Variables of the board of directors (LNBSIZE, INDPER, and ROLESEP) do not affect CARs in the full sample.

Board subcommittees (DUAC, DUCC, and DUNC) have a negative effect on CARs in the full sample. The size of a board of supervisors (LNSSIZE) has a positive effect on CARs. However, the significance level is not very high. Finally, the dummy variable of market reform has a negative effect on CARs, which means that pre-reform CARs are lower than those of post-reform.

Figures of table 7-2 show the relationship between corporate governance mechanism and the cumulative abnormal return that is calculated by the constant-mean-model in the full sample. Firstly, state ownership has a negative effect on CARs in the full sample. Secondly, there is a positive relationship between the size of a board of directors and the CARs. Finally, the dummy variable of market reform has a negative effect on CARS in the full sample. This result is similar to that of table 7-1. Other variables (LNBV, 1STPER, LNTINTPER, LNTPER, INDPER, ROLESEP, DUAC, DUCC, DUNC, and LNSSIZE) do not affect CARs in this table.

Figures of table 7-3 show the relationship between the corporate governance mechanism and the cumulative abnormal return that is calculated by the market-model in the sample of state owned listed companies. There is a negative relationship between the firm size (LNBV) and CARs in this sample. Board independence (INDPER) has a negative effect on CARs in this sample. However, the significance level of this positive effect is not high. The audit committee and compensation committee (DUAC and DUCC) have negative effects on CARs in this sample. However, the nomination committee (DUNC) does not affect CARs in this sample. Finally, there is a negative relationship between the dummy variables of market reform (DUREORM) and CARs in state owned listed companies. This means that the market reforms increase the

CARs in state owned listed companies. Other variables (1STPER, SPER, LNTINTPER, PNTPER, LNBSIZE, ROLESEP, and LNSSIZE) do not affect CARs in the sample of state owned listed companies.

Figures of table 7-4 show the relationship between the corporate governance mechanism and the cumulative abnormal returns that is calculated by the constant-mean-model in the sample of state owned listed companies. Generally speaking, the effects of corporate governance on information leakage in table 7-4 are similar to that in table 7-2

Figures of table 7-5 report the relationship between the corporate governance mechanism and CARS that is calculated by the market-model in the sample of private listed companies. There is a negative relationship between the firm size (LNBV) and CARS. Proportions of the tradable shares (LNTPER) have a negative effect on CARS in private listed companies. Board independence (INDPER) has a negative effect on CARS at 10% significance level. The audit committee and compensation committee (DUAC and DUCC) have negative effects on CARS in private listed companies. However, the nomination committee (DUNC) does not affect CARS in this table. There is a negative relationship between the dummy variable of market reform (DUREFORM) and CARS. This means that market reform increases the phenomenon of information leakage in private listed companies. Other variables (1STPER, SPER, LNTINTPER, PNTPER, LNBSIZE, ROLESEP, and LNSSIZE) do not affect CARs in the sample of private listed companies.

Table 7-1 corporate governance and information leakage - CARs (M) in Chinese listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

M4: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M5: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M6: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)

	M1	M2	M3	M4	M5	M6
Firm size	-0.054	-0.057	-0.063	-0.056	-0.059	-0.065
	(-5.9177)***	(-6.237)***	(-6.888)***	(-6.118)***	(-6.448)***	(-7.081)***
Ownership concentration	-0.084	-0.088	-0.079			
	(-1.578)	(-1.658)	(-1.469)			
State ownership				0.030	0.028	0.036
				(0.788)	(0.730)	(0.945)
institutional ownership	-0.005	-0.006	-0.007	-0.005	-0.006	-0.007
	(-1.956)**	(-2.033)**	(-2.438)**	(-1.967)**	(-2.050)**	(-2.437)**
tradable shares	-0.056	-0.063	-0.078	-0.046	-0.052	-0.067
	(-3.402)***	(-3.830)***	(-4.718)***	(-2.856)***	(-3.284)***	(-4.214)***
Size of BOD	0.013	0.018	0.024	0.017	0.022	0.028
	(0.426)	(0.574)	(0.773)	(0.550)	(0.701)	(0.898)
Independence of BOD	0.047	0.035	0.007	0.047	0.034	0.007
	(0.532)	(0.393)	(0.073)	(0.530)	(0.389)	(0.077)
Leadership of BOD	-0.013	-0.012	-0.011	-0.013	-0.012	-0.011
	(-0.773)	(-0.750)	(-0.686)	(-0.780)	(-0.756)	(-0.695)
Audit committee	-0.083			-0.083		
	(-10.377)***			(-10.378)***		
Compensation committee		-0.078			-0.078	
		(-9.752)***			(-9.735)***	
Nomination committee			-0.060			-0.061
			(-6.903)***			(-6.949)***
Size of BOS	0.048	0.051	0.053	0.049	0.052	0.053
	(1.905)*	(2.0209)**	(2.071)**	(1.933)*	(2.053)**	(2.087)**
Market reform	-0.153	-0.152	-0.144	-0.158	-0.156	-0.149
	(-18.711)***	(-18.523)***	(-17.648)***	(-19.404)***	(-19.218)***	(-18.353)***
C	0.783	0.808	0.850	0.765	0.790	0.832
	(5.121)***	(5.283)***	(5.514)***	(5.008)***	(5.169)***	(5.397)***
R^2	0.34	0.34	0.33	0.34	0.34	0.33
Adj. R^2	0.13	0.13	0.12	0.13	0.13	0.12

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Table 7-2 corporate governance and information leakage – CARs (C) in Chinese listed companies

M1: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 1STPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUAC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

M2: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 1STPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUCC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

M3: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 1STPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUNC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

M4: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 SPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUAC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

M5: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 SPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUCC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

M6: INFORMATION LEAKAGE = $\alpha + \beta_1 LNBV + \beta_2 SPER + \beta_3 LNTINTPER + \beta_4 LNTPER + \beta_5 INDPER + \beta_6 LNBSIZE + \beta_7 ROLESE\ P + \beta_8 DUNC + \beta_9 LNSSIZE + \beta_{10} DUREFORM + C$

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3	M4	M5	M6
Firm size	-0.004	-0.004	-0.006	-0.002	-0.002	-0.004
	(-0.212)	(-0.216)	(-0.318)	(-0.096)	(-0.101)	(-0.210)
Ownership concentration	-0.255	-0.258	-0.280			
	(-1.590)	(-1.606)	(-1.744)*			
State ownership				-0.229	-0.230	-0.242
				(-2.299)**	(-2.312)**	(-2.435)**
institutional ownership	-0.017	-0.018	-0.019	-0.021	-0.021	-0.023
	(-1.298)	(-1.314)	(-1.422)	(-1.583)	(-1.601)	(-1.728)
tradable shares	-0.043	-0.043	-0.065	-0.034	-0.034	-0.053
	(-0.548)	(-0.556)	(-0.843)	(-0.483)	(-0.486)	(-0.766)
Size of BOD	0.293	0.293	0.293	0.322	0.321	0.324
	(2.726)***	(2.718)***	(2.718)***	(3.011)***	(3.004)***	(3.024)***
Independence of BOD	0.476	0.472	0.415	0.441	0.437	0.377
	(1.078)	(1.069)	(0.937)	(0.999)	(0.990)	(0.852)
Leadership of BOD	0.036	0.037	0.040	0.044	0.045	0.048
	(0.542)	(0.558)	(0.592)	(0.659)	(0.674)	(0.712)
Audit committee	-0.055			-0.053		
	(-1.223)			(-1.190)		
Compensation committee		-0.053			-0.052	
		(-1.213)			(-1.184)	
Nomination committee			0.028			0.030
			(0.653)			(0.693)
Size of BOS	-0.017	-0.017	-0.016	0.008	0.008	0.010
	(-0.252)	(-0.245)	(-0.244)	(0.113)	(0.121)	(0.141)
Market reform	-0.996	-0.994	-0.971	-0.995	-0.993	-0.971
	(-20.090)***	(-20.230)***	(-20.116)***	(-20.081)***	(-20.222)***	(-20.107)***
C	-2.409	-2.407	-2.418	-2.566	-2.564	-2.582
	(-6.303)***	(-6.291)***	(-6.321)***	(-6.569)***	(-6.559)***	(-6.607)***
R²	0.16	0.16	0.16	0.16	0.16	0.16
Adj. R²	0.16	0.16	0.16	0.16	0.16	0.16

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 7-3 corporate governance and information leakage – CARs (M) in state owned listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

M4: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M5: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M6: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)

	M1	M2	M3	M4	M5	M6
Firm size	-0.059	-0.062	-0.070	-0.055	-0.059	-0.066
	(-2.012)**	(-2.129)**	(-2.393)**	(-1.889)*	(-2.005)**	(-2.266)**
Ownership concentration	-0.023	-0.028	-0.019			
	(-0.126)	(-0.153)	(-0.105)			
State ownership				-0.212	-0.214	-0.211
				(-1.140)	(-1.155)	(-1.137)
institutional ownership	0.008	0.008	0.007	0.008	0.007	0.007
	(0.912)	(0.876)	(0.793)	(0.856)	(0.820)	(0.737)
tradable shares	0.015	0.006	-0.011	-0.007	-0.017	-0.035
	(0.269)	(0.103)	(-0.201)	(-0.127)	(-0.288)	(-0.598)
Size of BOD	-0.083	-0.082	-0.077	-0.090	-0.089	-0.084
	(-0.7901)	(-0.779)	(-0.731)	(-0.852)	(-0.841)	(-0.794)
Independence of BOD	-0.528	-0.548	-0.582	-0.530	-0.549	-0.583
	(-1.805)*	(-1.874)*	(-1.992)**	(-1.811)*	(-1.879)*	(-1.997)**
Leadership of BOD	-0.068	-0.066	-0.066	-0.067	-0.065	-0.065
	(-1.082)	(-1.055)	(-1.057)	(-1.073)	(-1.046)	(-1.047)
Audit committee	-0.074			-0.074		
	(-2.806)***			(-2.809)***		
Compensation committee		-0.065			-0.065	
		(-2.454)**			(-2.463)**	
Nomination committee			-0.040			-0.040
			(-1.377)			(-1.382)
Size of BOS	-0.087	-0.083	-0.079	-0.087	-0.083	-0.079
	(-1.087)	(-1.035)	(-0.986)	(-1.093)	(-1.039)	(-0.993)
Market reform	-0.138	-0.137	-0.131	-0.129	-0.128	-0.122
	(-5.027)***	(-4.970)***	(-4.773)***	(-4.704)***	(-4.650)***	(-4.444)***
C	1.603	1.638	1.703	1.634	1.668	1.735
	(3.211)***	(3.284)***	(3.404)***	(3.278)***	(3.349)***	(3.473)***
R^2	0.30	0.30	0.30	0.30	0.30	0.30
Adj. R^2	0.06	0.06	0.06	0.06	0.06	0.06

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 7-4 corporate governance and information leakage - CARs(C) in state owned listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

M4: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUAC + β_9LNSSIZE +β_{10}DUREFORM + C

M5: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUCC + β_9LNSSIZE +β_{10}DUREFORM + C

M6: INFORMATION LEAKAGE = α + β_1LNBV + β_2SPER + β_3LNTINTPER +β_4LNTPER +β_5 INDPER + β_6 LNBSIZE +β_7ROLESE P +β_8DUNC + β_9LNSSIZE +β_{10}DUREFORM + C

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3	M4	M5	M6
Firm size	-0.012	-0.012	-0.015	-0.008	-0.008	-0.011
	(-0.451)	(-0.455)	(-0.585)	(-0.318)	(-0.316)	(-0.431)
Ownership concentration	-0.199	-0.201	-0.211			
	(-0.998)	(-1.006)	(-1.054)			
State ownership				-0.513	-0.514	-0.541
				(-2.293)**	(-2.298)**	(-2.422)**
institutional ownership	-0.017	-0.017	-0.018	-0.018	-0.018	-0.019
	(-1.027)	(-1.030)	(-1.068)	(-1.123)	(-1.124)	(-1.164)
tradable shares	0.004	0.004	-0.014	-0.105	-0.105	-0.128
	(0.042)	(0.040)	(-0.149)	(-0.993)	(-0.990)	(-1.216)
Size of BOD	0.285	0.285	0.284	0.284	0.284	0.282
	(2.145)**	(2.139)**	(2.132)**	(2.151)**	(2.146)**	(2.131)**
Independence of BOD	0.528	0.529	0.461	0.525	0.527	0.458
	(0.958)	(0.958)	(0.833)	(0.951)	(0.955)	(0.829)
Leadership of BOD	0.072	0.072	0.076	0.084	0.084	0.088
	(0.812)	(0.813)	(0.852)	(0.946)	(0.945)	(0.993)
Audit committee	-0.032			-0.021		
	(-0.587)			(-0.377)		
Compensation committee		-0.033			-0.024	
		(-0.625)			(-0.453)	
Nomination committee			0.045			0.054
			(0.853)			(1.015)
Size of BOS	0.028	0.028	0.030	0.037	0.037	0.039
	(0.358)	(0.358)	(0.377)	(0.469)	(0.468)	(0.494)
Market reform	-0.988	-0.987	-0.968	-0.992	-0.993	-0.975
	(-16.676)***	(-16.793)***	(-16.741)***	(-16.762)***	(-16.890)***	(-16.852)***
C	-2.409	-2.406	-2.390	-2.416	-2.414	-2.397
	(-5.055)***	(-5.042)***	(-5.002)***	(-5.069)***	(-5.059)***	(-5.018)***
R^2	0.17	0.17	0.17	0.17	0.17	0.17
Adj. R^2	0.16	0.16	0.16	0.16	0.16	0.16

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Table 7-5 corporate governance and information leakage – CARs (M) in private listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER +β_5LNTPER +β_6INDPER + β_7LNBSIZE +β_8ROLESE P +β_9DUAC + β_{10}LNSSIZE +β_{11}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER +β_5LNTPER +β_6INDPER + β_7LNBSIZE +β_8ROLESE P +β_9DUCC + β_{10}LNSSIZE +β_{11}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER +β_5LNTPER +β_6INDPER + β_7LNBSIZE +β_8ROLESE P +β_9DUNC + β_{10}LNSSIZE +β_{11}DUREFORM + C

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)

	M1	M2	M3
Firm size	-0.054	-0.055	-0.058
	(-2.930)***	(-2.989)***	(-3.138)***
Ownership concentration	-0.092	-0.101	-0.116
	(-0.613)	(-0.671)	(-0.768)
State ownership	-0.011	-0.015	-0.003
	(-0.068)	(-0.091)	(-0.019)
institutional ownership	0.007	0.007	0.005
	(0.974)	(0.980)	(0.629)
tradable shares	-0.141	-0.149	-0.178
	(-3.203)***	(-3.418)***	(-4.067)***
Size of BOD	-0.035	-0.027	-0.024
	(-0.464)	(-0.352)	(-0.314)
Independence of BOD	-0.404	-0.419	-0.454
	(-1.744)*	(-1.807)*	(-1.950)*
Leadership of BOD	-0.021	-0.022	-0.019
	(-0.622)	(-0.661)	(-0.574)
Audit committee	-0.066		
	(-3.239)**		
Compensation committee		-0.061	
		(-2.981)***	
Nomination committee			-0.013
			(-0.562)
Size of BOS	0.045	0.046	0.055
	(0.642)	(0.664)	(0.786)
Market reform	-0.196	-0.194	-0.183
	(-9.407)***	(-9.328)***	(-8.850)***
C	1.023	1.020	1.001
	(3.211)***	(3.199)***	(3.127)***
R^2	0.46	0.46	0.46
Adj. R^2	0.24	0.24	0.23

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Figures of table 7-6 describe the relationship between the corporate governance mechanism and CARS that is calculated by the constant-mean-model in the sample of private listed companies. There is a positive relationship between the size of a board of directors (LNBSIZE) and CARs at the 10% significance level. The dummy variable of market reform (DUREFORM) has a negative effect on CARs. In other words, the pre-reform CARs are lower than those of post-reform in private listed companies. Other variables in this table do not affect CARs.

Generally speaking, the firm size of companies will reduce the phenomenon of information leakage. The ownership concentration and the state ownership of Chinese listed companies do not affect the phenomenon of information leakage. Proportions of the tradable shares decrease the phenomenon of information leakage. Institutional ownership reduces the information leakage in general. However, this effect is not robust in sub-samples. The size of a board of directors only exacerbates the information leakage, which is calculated by the constant- mean-model. However, other variables of the board of directors do not affect information leakage. Board subcommittees will help companies to reduce the phenomenon of information leakage. The board of supervisors does not significantly contribute to decreasing information leakage. Finally, market reform exacerbates the problem of information leakage. In other words, the phenomenon of information leakage is more serious after the market reform.

Table 7-6 corporate governance and information leakage-CARs(C) in private listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUAC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUCC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + $\beta_2$1STPER + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUNC + β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3
Firm size	0.014	0.015	0.015
	(0.395)	(0.422)	(0.443)
Ownership concentration	-0.202	-0.205	-0.258
	(-0.661)	(-0.669)	(-0.849)
State ownership	0.006	0.007	-0.016
	(0.017)	(0.018)	(-0.042)
institutional ownership	-0.018	-0.019	-0.022
	(-0.754)	(-0.788)	(-0.914)
tradable shares	-0.111	-0.112	-0.147
	(-0.788)	(-0.791)	(-1.059)
Size of BOD	0.324	0.323	0.327
	(1.731)*	(1.722)*	(1.744)*
Independence of BOD	0.315	0.303	0.272
	(0.421)	(0.405)	(0.364)
Leadership of BOD	-0.006	-0.002	0.000
	(-0.056)	(-0.018)	(-0.001)
Audit committee	-0.100		
	(-1.250)		
Compensation committee		-0.091	
		(-1.156)	
Nomination committee			0.001
			(0.009)
Size of BOS	-0.097	-0.095	-0.095
	(-0.692)	(-0.672)	(-0.674)
Market reform	-1.014	-1.007	-0.978
	(-11.105)***	(-11.152)***	(-11.033)***
C	-2.548	-2.566	-2.648
	(-3.542)***	(-3.573)***	(-3.698)***
R²	0.15	0.15	0.14
Adj. R²	0.13	0.13	0.13

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

7.4. Discussion and interpretation

In this section, the empirical results of section 7.2 will be discussed and interpreted.

7.4.1. Firm size and information leakage

A good corporate governance mechanism is costly for listed companies, since it relies on professional people and professional services (Gibbins *et al.*, 1990; Bujaki and McConomy, 2002). Large companies have a strong financial capacity and can afford the cost of developing a good corporate governance mechanism. Under this circumstance, there will be less information asymmetry between large companies and shareholders. This will increase corporate transparency and therefore reduce pre-announcement abnormal returns. The figures of tables 7-1, 7-3, and 7-5 indicate that there is a negative relationship between firm size and information leakage in Chinese listed companies.

Balasubramanian *et al.* (2010) state that in the emerging markets, the quality of corporate governance is positively related to firm size. In the Chinese market, the imperfect market mechanism means that large companies, and especially state owned companies, have more resources. Under this circumstance, large companies are more able to adopt a better corporate governance mechanism. A good corporate governance mechanism will reduce information asymmetry between companies and shareholders and reduce information leakage.

7.4.2. Ownership structure and information leakage

7.4.2.1. Non-tradable shares and information leakage

One feature of Chinese listed company ownership structure is the stock segmentation system. This system classifies shareholders of Chinese listed companies in two categories, shareholders of non-tradable and of tradable shares. Stock segmentation excludes small shareholders from the process of corporate decision making, thereby causing the corporate governance mechanism to be influenced by corporate insiders (Tomasic and Fu, 2006; Xu *et al.*, 2005). The figures in table 4-1 (chapter 4) indicates that before market reform, the majority shares of Chinese listed companies were non-tradable shares. Large shareholders held a substantial proportion of non-tradable shares and controlled the listed company AGM (Li *et al.*, 2005; Wei and Geng, 2008). Thus, small shareholders are unable to influence the management of these companies. In this circumstance, the corporate governance mechanism cannot effectively achieve corporate transparency. This may increase information asymmetry between companies and external investors, and thus increase information leakage.

Although figures of table 7-1 and 7-5 indicate there is a negative relationship between the proportion of tradable shares and information leakage, the other table indicates that the proportion of tradable shares does not affect information leakage. Thus, it is hard to say that the reduction of non-tradable shares is a factor in decreasing information leakage in Chinese listed companies.

One result of the elimination of non-tradable shares is the problem of the free–rider. In the foregoing discussion in sections 2.3.1.1 and 5.5.2.1, the

problem of the free-rider is shown to decrease the effect of corporate governance on listed companies, and thus, increase information asymmetry between companies and shareholders. Market reform removes the trading restriction from the majority of shares in Chinese listed companies, thereby dispersing the ownership of those companies. The majority of Chinese investors are individual, small investors (China Academy of Social Science, 2010; Zhang *et al.*, 2010). They lack the ability to monitor the listed companies to motivate them to increase corporate transparency. Under this circumstance, the widespread ownership structure of Chinese listed companies will exacerbate the problem of the free-rider. This will make listed companies vulnerable to information asymmetry and thereby increase information leakage.

Another result of the elimination of non-tradable shares is that the market mechanism has the opportunity to influence most of Chinese listed companies, and they will be driven to comply with the requirements of the market mechanism. Chinese listed companies will begin to strengthen the quality of their corporate governance mechanisms, by reducing information asymmetry and increasing corporate transparency. This will reduce pre-announcement abnormal returns in the Chinese securities market.

7.4.2.2. State ownership and information leakage

State ownership has been criticized by Chinese market participants for a long time. State ownership will influence the quality of the corporate governance mechanism of the Chinese listed companies. For instance, it influences the composition of the boards of directors since the state appoints government officials to work as directors and senior executives (Huang *et al.*, 2006). Additionally, state ownership reduces the regulatory efficiency of the market

watchdog (Berkman *et al.,* 2009). In the Chinese securities market, the market watchdog is a government department, thus the relationship between market watchdog and state shareholders will prevent the market regulator from the effective regulation of those shareholders. In this way, state ownership may cause serious information asymmetry between companies and shareholders.

However, the empirical results of tables 7-2 and 7-4 show that there is a negative relationship between the proportion of state ownership and information leakage. Compared with private shareholders, state shareholders are subject to administration orders from the government (Li *et al.*, 2005). Although state shareholders reduce the regulatory efficiency of the market watchdog, this does not mean that the shareholders are unregulated. The activities of state shareholders are controlled by government administration, and this ensures that they cannot abuse their power to expropriate the rights of small shareholders (Li *et al.*, 2005). As a result, state ownership does not necessarily exacerbate information asymmetry. Additionally, state shareholders are less likely to expropriate the right of small shareholders (Yang, 2002). Thus, the proportion of state ownership may decrease information asymmetry. Compared with state shareholders, private shareholders, especially large private shareholders, are more likely to expropriate the right of other shareholders (Yang, 2002). The market watchdog of the Chinese securities market is unable to effectively monitor the activities of large private shareholders (Li *et al.*, 2005), in which case, they exacerbate the information asymmetry between companies and shareholders. This will increase information leakage in the Chinese securities market. The proportion of state ownership reduces the ability of large private shareholders to expropriate the rights of small shareholders. Therefore, state ownership decreases information leakage.

242

7.4.2.3. Ownership concentration and information leakage

Conventional wisdom holds that ownership concentration will exacerbate the conflicts of interest among shareholders (Faccio *et al.*, 2001; López-de-Foronda *et al.*, 2007), thereby impairing the quality of corporate governance. It also holds that ownership concentration will exacerbate information asymmetry between companies and shareholders.

However, the figures in tables 7-1 to 7-6 indicate that the ownership concentration (1STPER) does not affect information leakage in Chinese listed companies. Although inappropriate ownership concentration will exacerbate the conflict of interest between large and small shareholders and therefore increase information asymmetry, ownership concentration will reduce the conflict of interest between shareholders and executives. To some extent, it may reduce the information asymmetry between companies and shareholders. The majority of Chinese investors are individual investors, and they are unsophisticated and irrational (Tang *et al.*, 2004; Zhang *et al.*, 2010). Thus, most Chinese investors lack the ability to monitor the listed companies. Under this circumstance, the executives of listed companies can exacerbate information asymmetry and thereby increase information leakage. Ownership concentration will increase the supervisory pressure exerted by shareholders to motivate companies to increase their corporate transparency and reduce information leakage.

As the Chinese market develops, large shareholders begin to pay attention to the rights of minority shareholders (Corporate Governance Research Centre, 2010). Under this circumstance, large shareholders will increase corporate transparency to fulfil the demand for information from

minority shareholders. Thus, there is no significant relationship between ownership concentration and information leakage in private listed companies.

7.4.2.4. Institutional ownership and information leakage

Conventional wisdom believes that institutional shareholders improve the quality of the corporate governance mechanism and thereby reduce information asymmetry (Laidroo, 2009; Chen-Lung *et al.*, 2009). The results reported in tables 7-1 indicate that there is a negative relationship between the proportion of institutional ownership and information leakage. However, figures of other tables indicate that the proportion of institutional ownership does not affect information leakage. Thus, it is hard to support the hypothesis that there is a negative relationship between the proportion of institutional ownership and information leakage.

Prior to market reform, institutional shareholders are less inclined to be involved in the corporate managerial decision making process, since stock segmentation allowed shareholders of non-tradable shares to control the process of this decision making (as discussed in section 3.3). This means that the institutional investors were unable to effectively protect their interests, and in order to do so, they would collude with the corporate insider large shareholders to increase their wealth and expropriate the rights of other shareholders. Yue (2005) indicates that before market reform, institutional investors were more inclined to abuse their information advantage and expropriate the rights of other shareholders. Thus, institutional investors increased information asymmetry between companies and shareholders, and increased information leakage.

After market reform, the proportion of non-tradable shares in Chinese companies is decreasing and more Chinese investors are entering the Chinese securities market (Zhang *et al.*, 2010). At the same time, the numbers of institutional investors is increasing (Zhang *et al.*, 2010). The elimination of non-tradable shares gives institutional investors the opportunity to purchase more shares in Chinese listed companies. Table 4-1 (chapter 4) indicates that the proportion of institutional ownership is increasing. Under this circumstance, institutional investors are able to purchase large proportions of shares in the listed companies. This increases the influence of outside investors on those companies. For instance, institutional investors have more opportunities to take part in the process of corporate decision making (China Academy of Social Science, 2010), and thus, Chinese listed companies will face more monitoring pressure from outside investors. As a result of this, institutional investors will motivate the listed companies to increase their corporate transparency and thereby reduce information asymmetry.

In general, the two opposite effects of institutional ownership on information asymmetry means that institutional ownership has no significant effect on information leakage in listed companies.

7.4.3. Board of directors and information leakage

Besides the ownership structure, another important pillar of the internal corporate governance mechanism is the board of directors (Dahya *et al.*, 2008). The separation of control and ownership which is a feature of listed companies means that boards of directors play an important role in listed companies.

However, the empirical results of section 7.3 indicate that boards of directors do not affect information leakage in the Chinese securities market.

As an agent of the corporate shareholders, members of the boards of directors should represent the majority interests of their shareholders. However, in Chinese listed companies, the inappropriate ownership structure means that the boards of directors fail to represent them properly. In Chinese listed companies, the majority of shares are held by the majority (holding) shareholder (Xu and Wang, 1999; Li *et al.*, 2005). The descriptive statistics reported in section 4.8 indicate that the ownership concentration of the Chinese listed companies is dispersing. However, Deloitte-China (2010) indicates that shareholdings of the second and third largest shareholders are still far smaller than the shareholding of the largest shareholders. Majority (holding) shareholders still have a substantial influence on the AGMs of Chinese listed companies (Deloitte-China, 2010). Under this circumstance, the composition of the board of directors is determined by the interests of majority (holding) shareholders rather than by those of the majority of shareholders. Thus, the boards of directors effectively become the agents for the majority (holding) shareholders in Chinese listed companies.

7.4.3.1. Board size and information leakage

Theoretically, the size of a board of directors is a factor in determining the quality of that board, since it determines the communication efficiency of the board (Jensen, 1993; Eisenberg *et al.,* 1998). However, empirical results of section 7.3 report that there is no significant relationship between board size and information leakage. This indicates that in the Chinese listed companies, the size of a board of directors is not a factor in its efficiency and performance.

Huang *et al*. (2006) and Allen *et al*. (2007) indicate that majority (holding) shareholders will appoint their affiliated people to work as board directors. Thus, majority (holding) shareholders have a substantial influence on the boards of directors of Chinese listed companies. Under this circumstance, the size of a board of directors does not affect its performance and efficiency, nor does board size have any effect on information leakage.

7.4.3.2. Leadership structure and information leakage

Conventional wisdom suggests that the role separation of CEO and chairman of the board of directors will increase the quality of corporate transparency, since it reduces collusion between board members and corporate executives (Mak and Li, 2001) and therefore drives listed companies to disclose more information (Ho and Wong, 2001). According to the empirical results represented in section 7.2, role separation does not really affect the performance of the board of directors, since there is no significant relationship between role separation (ROLESEP) and information leakage in Chinese listed companies. As mentioned in the first paragraph of this section, majority (holding) shareholders of Chinese listed companies determine the composition of the corporate managerial team and the board of directors (Li *et al*., 2005). Under this circumstance, both CEO and chairman appointments are influenced by the interests of the majority (holding) shareholders. Thus, although the figures of table 4-1indicate that the majority of Chinese listed companies separate CEO from chairman, this role separation does not affect the performance of board of directors and will have no significant effect on information leakage.

7.4.3.3. Board independence and information leakage

In the developed market, independent directors are an important factor in the increase of corporate transparency and the decrease of information asymmetry (Nowak and McCabe, 2003; Davidson *et al.*, 2005; Ahmed *et al.,* 2006; Kanagaretnam *et al.,* 2007). However, the empirical results of section 7.3 indicate that board independence in Chinese listed companies does not affect information leakage in the Chinese securities market.

In Chinese listed companies, nominations of independent directors are seriously influenced by the interests of the majority (holding) shareholders (Zhou, 2009). Under this circumstance, people affiliated to the majority (holding) shareholders are nominated to serve as independent directors in Chinese listed companies. Secondly, not all of the independent directors of Chinese listed companies are qualified for the role (Zhou, 2009); some of them lack the professional knowledge and ability to work as independent directors. Additionally, conflicts of duties between independent directors and the board of supervisors can prevent independent directors from having any effect on the quality of the corporate governance mechanism (Jiang, 2009). According to the managerial hierarchy of Chinese listed companies, independent directors and supervisors face the problem of duty duplication. Finally, Chinese listed companies are still learning the importance of independent directors, since the relevant codes and laws fail to clearly define their duties in the listed companies (Jiang, 2009; Qu, 2009). This means that independent directors of Chinese listed companies are unable to increase their performance and efficiency as

directors. Thus, board independence does not affect information leakage in the Chinese securities market.

7.4.4. Board subcommittees and information leakage

The purpose of establishing a subcommittee is to increase the quality and efficiency of the board's supervision, and thus increase the transparency of companies (Vafeas, 1999). Through the establishment of subcommittees, groups of relevant directors solve specific managerial issues for their companies. Figures in section 7.3 show that board subcommittees begin to have negative effects on information leakage after market reform. To some extent, this is consistent with the theoretical prediction that the use of board subcommittees will reduce the information asymmetry between companies and investors, and thus lower the information leakage.

The results reported in section 7.3 suggest that after market reform, the market mechanism has more opportunity to influence the conduct of Chinese listed companies and they begin to pay attention to the quality of their corporate governance mechanisms. For instance, more Chinese listed companies begin to appoint board subcommittees after the year 2005. Figures reported in table 4-1 indicate that there has been a dramatic increase in the numbers of companies that establish board subcommittees in recent years. This development is expected to strengthen the quality of corporate governance in Chinese listed companies and reduce information asymmetry between companies and shareholders. The use of audit and remuneration committees motivate listed companies to disclose more information to the market, which

reduces information asymmetry between companies and shareholders (Koh *et al.*, 2007; Laksmana, 2008). Nomination committees ensure board independence and therefore reduce information asymmetry between companies and shareholders (Ruigrok *et al.*, 2006). After market reform, Chinese listed companies begin to strengthen the operation of their subcommittees (China Academy of Social Science, 2010). Thus, the results reported in section 7.3 indicate that after market reform there are negative relationships between board subcommittees and information leakage in the Chinese securities market.

The efficiency and performance of board subcommittees depend on quality of the members of these subcommittees. Klein (1998) and Vafeas (1999, 2003) indicate that independent directors are suitable members of board subcommittees. However, the characteristics of independent directors of Chinese listed companies may limit their future development since these companies lack qualified independent directors (Rajagopalan and Zhang, 2008; Zhou, 2009). Thus to increase the performance and efficiency of subcommittees, Chinese listed companies need to appoint better qualified independent directors.

7.4.5. Board of supervisors and information leakage

All Chinese listed companies must establish a board of supervisors, and this works as another internal monitoring institution. Previous papers indicate that the board of supervisors does not have much influence in Chinese listed companies (Tian and Estrin, 2005; Li *et al.,* 2005; Deloitte-China, 2010). Hence, the board of supervisors does not affect corporate transparency and information leakage in the Chinese securities market.

Results from section 7.3 indicate that there is no significant relationship between the size of a supervisory board and information leakage. Relevant laws in the Chinese securities market dictate that a board of supervisors also takes on the duty of monitoring its company. However, the board of supervisors lacks real supervisory power in the listed companies, and so they cannot really increase the quality of corporate governance to reduce information leakage. Secondly, Li *et al.* (2005) indicate that there is rivalry between boards of directors and boards of supervisors in Chinese listed companies, and this reduces the efficiency and performance of the board of supervisors. In the managerial hierarchy of Chinese listed companies, boards of supervisors and boards of directors are nearly at the same level. This duplication of the duties of the two constituents reduces the effectiveness of the board of supervisors. Finally, like the board of directors, large shareholders, especially the majority (holding) shareholder, can influence the board of supervisors (Li *et al.,* 2005; Deloitte-China, 2010). People affiliated to large shareholders will be appointed as members of the board of supervisors. Under this circumstance the board of supervisors then becomes a nominal constituent in the company, since itsactivities will be influenced by the majority (holding) shareholder. The above reasons may explain why there is no significant relationship between the size of a board of supervisors and information leakage in Chinese listed companies.

7.4.6. Market reform and information leakage

To reflect the influence of market reform on the relationship between the corporate governance mechanism and information leakage, there is a dummy variable of market reform in regression models. Empirical results of section 7.3 indicate that there is a negative relationship between the dummy variable and

information leakage. This means that after market reform, information leakage continues in the Chinese market.

One feature of the market reforms of 2005 is the elimination of non-tradable shares. On the one hand, this increases market liquidity of the Chinese market, since more shares can be exchanged. However, the unsophisticated corporate governance mechanism of Chinese listed companies coupled with the unsophisticated market regulation mechanism means that the increase in market liquidity causes an increase in the profitability of market fraud. The majority of Chinese investors are individual investors (Zhang *et al,.* 2010), and thus they lack the ability to monitor the activities of insiders. At the same time, the corporate governance mechanism and market regulation mechanism also fail to reduce market fraud. Thus, after reform, there is more information leakage in the Chinese market.

7.5. Robustness test

To ensure the robustness of the empirical results of chapter 7, this section also employs the pooled OLS estimation technique to estimate the relationship between the corporate governance mechanism and information leakage in Chinese listed companies.

Results of the pooled OLS estimation are listed in appendix 7-1 to 7-6. Firstly, the empirical results indicate that firm size will help Chinese listed companies to reduce the phenomenon of information leakage. Generally, ownership concentration and state ownership do not affect information leakage in Chinese listed companies. Institutional ownership and the proportion of tradable shares are found not to affect information leakage. The empirical

results of the pooled OLS estimation indicate that the board of directors and the board of supervisors do not affect information lekage. Results of this section indicate that audit and compensation committees will help companies to reduce information leakage in the Chinese market. However, the negative effect of a nomination committee on information leakage is not robust. Finally, figures of Appendix 7-1 to 7-6 indicate that there is more information leakage in the Chinese market after market reform.

7.6. Conclusion

This chapter reported and interpreted the empirical results about the relationship between the corporate governance mechanism and information leakage in Chinese listed companies.

Previous studies find that there is a positive relationship between firm size and the quality of corporate governance in emerging markets (Balasubramanian *et al.,* 2010). A good corporate governance mechanism will reduce information asymmetry and increase corporate transparency (Lakhal, 2003). Thus, firm size may reduce the phenomenon of information leakage in the Chinese securities market. In this thesis, the empirical results confirm that larger companies will have less information leakage in the Chinese market.

Huang and Fung (2005) state that non-tradable shares increase information asymmetry between the listed companies and their shareholders in the Chinese securities market. Thus, the elimination of non-tradable shares should reduce information asymmetry between companies and shareholders, and this may lower information leakage in the Chinese securities market. Results from section 7.3 indicate that the proportion of tradable shares has no

significant effect on information leakage in the Chinese securities market. The elimination of non-tradable shares will exacerbate the problem of the free-rider in the Chinese securities market. The majority of investors in the Chinese securities market are individual and small shareholders (Zhang *et al.*, 2010). Thus, they cannot effectively motivate listed companies to decrease information leakage. However, the elimination of non-tradable shares removes the trading restriction and this will allow the market mechanism more opportunity to influence Chinese listed companies. This may reduce information leakage. Thus, the proportion of tradable shares does not affect information leakage in the Chinese securities market.

Choi *et al. (*2010) point out that the state can exacerbate information asymmetry between Chinese listed companies and their shareholders. However, the empirical results indicate that state ownership (SPER) negatively affects information leakage in the Chinese securities market. Although the state has the ability to increase information asymmetry, it does not mean that it wishes to do so. Li *et al.* (2005) indicate that compared with private companies, state owned companies are more likely to disclose information to the market. Additionally, state shareholders cannot abuse their power and expropriate small shareholders, since the government administration order will limit their behaviour (Li *et al.,*2005). However, the market regulatory agency cannot effectively monitor holders of state shares, since both of them are influenced by the government. Under this circumstance, some holders of state shares will exacerbate information asymmetry, thereby increasing the information leakage. Thus, in general, there is no significant relationship between state ownership and information leakage.

Although ownership concentration will exacerbate the conflict of interest between shareholders (Faccio *et al.*, 2001;López-de-Foronda*et al.*, 2007), ownership concentration will reduce the conflict of interest between shareholders and executives. In the Chinese securities market, the majority of investors are individual investors, and they are unsophisticated and irrational (Tang *et al.*, 2004; Zhang *et al.*, 2009); they lack the ability and desire to monitor the executives of listed companies. Under this circumstance, ownership concentration will reduce information leakage. Therefore, this thesis finds that the ownership concentration does not affect information leakage in Chinese listed companies.

The effect of the proportion of institutional ownership (LNTINTPER) on information leakage is not significant in general. In the pre-reform period, the ownership structure gives institutional investors few opportunities to influence listed companies. Thus institutional investors may abuse their information advantages to expropriate the rights of the small shareholder and increase their wealth (Yue, 2005). Thus, the proportion of institutional ownership has a positive effect on information leakage before market reform. After market reform, institutional investors begin to have opportunities to take part in the process of corporate decision making; they are then able to monitor the listed companies. This reduces information asymmetry between companies and shareholders. Thus, this is reason that there is no significant relationship between institutional ownership and information leakage.

In Chinese listed companies, the boards of director and boards of supervisors are influenced by the large shareholders, especially majority (holding) shareholders (Rajagopalan and Zhang, 2008; Zhou, 2009). The

empirical results of this thesis find that the boards of directors and the boards of supervisors (LNBSIZE, INDPER, ROLESEP, and LNSSIZE) do not affect information leakage. Under the influence of large shareholders, these boards cannot motivate the listed companies to increase their corporate transparency. Hence, boards of directors and boards of supervisors have no effect on information leakage in the Chinese securities market.

Before market reform, Chinese listed companies paid less attention to the issue of the quality of corporate governance (Lu and Kong, 2005), and thus, the subcommittees did not work properly in the Chinese listed companies (Lin *et al.,* 2008). However, the figures reported in table 4-1 indicate that there is an increasing trend in the numbers of companies that have established board subcommittees. This means that Chinese listed companies are beginning to pay attention to the quality of corporate governance mechanisms (China Academy of Social Science, 2010). Therefore, board subcommittees have a negative effect on information leakage in Chinese listed companies.

The purpose of the new market reforms, which started at the end of year 2005, is to increase the effect of the market mechanism on Chinese listed companies in order to protect the interest of shareholders. However, the empirical results of this chapter find that these market reforms have led to an increase in information leakage. Market reforms increase market liquidity of Chinese market, since more shares can be exchanged in the market. However, the unsophisticated corporate governance mechanism and market regulation system lead to an increase in the profitability of market fraud. Thus, there is an increase in information leakage after market reforms.

Chapter 5 to chapter 7 are three chapters that empirically evaluate the effects of corporate governance on firm performance, the extent of information leakage, and the effects of corporate governance on information leakage. The aim of this thesis is to evaluate the effects of corporate governance. Thus, these three chapters provide empirical evidence about the effects of corporate governance on firm performance and information leakage in Chinese companies. Based on this empirical evidence, the final chapter will provide recommendations to help Chinese companies increase the quality of corporate governance, and therefore, increase firm performance and reduce information leakage

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Chapter 8. Policy implications for the Chinese Stock Market and conclusion

8.1. Introduction

The previous chapters of this thesis offer an empirical evaluation of the relationship between the corporate governance mechanism and firm performance of Chinese listed companies, and of the relationship between the corporate governance mechanism and information leakage. The purpose of this chapter is to discuss how the corporate governance mechanism of Chinese listed companies could be further reformed.

Generally, these recommendations can be classified into the following categories:

- Definition of 'insider' in the Chinese securities market based on the principle of 'equal access'.

- Further reform of the ownership structure of Chinese listed companies to reduce the influence of single large shareholders.

- Redesign of the internal governance mechanism to increase its performance.

- Revision of the relevant code to motivate independent and institutional investors to actively monitor listed companies.

- Strengthening of the role of the market regulator to include more duties which would increase the quality of the corporate governance mechanism of Chinese listed companies.

8.2. Suggestions for the Chinese market

8.2.1. External market regulation reform

8.2.1.1. Legislation reform

The definition of insider will determine the quality and effectiveness of insider trading legislation (Beny, 2005).

The main debate of the legal scope is whether the tippees should be considered as corporate insiders (Beny 2005). The tippers must be defined as corporate insiders, since they work in the companies or they can access the specific material information whereas tippees are not directly related to the companies. However, they can receive specific material information from the tippers and in this way become informed investors in the securities market; therefore, the tippees can be seen as accomplices of the tippers. Thus, it is necessary to define tippees as insiders to deter them from being involved in insider trading activities.

Compared with the CSL 1996, the CSL 2006 extends the definition of corporate insiders. In the CSL 2006,

relevant staffs of sponsors, underwriting securities companies, exchanges, registration and settlement bodies, securities service institutions, controlling shareholders, actual controlling persons of the

issuer and their directors, supervisors and senior management (encompassing parent entities), as well as companies of which the issuer is the controlling person and their directors, supervisors and senior management (subsidiary entities) (Xu and Zheng, 2007:106).

The former CSL only focuses on the issuer of shares but ignores their parent and subsidiary entities. Staff of the parent and of the subsidiary entities also has the opportunity to access material information of listed companies, which are the issuers of shares. Thus, these people should also be considered as insiders, although they may not actually work for the listed companies. The CSL 2006 extends the scope of insiders to deter more people from being involved in insider trading. The CSL 2006 also prohibits corporate insiders leaking corporate inside information before corporate disclosure, and corporate insiders must not encourage other people to trade shares with material information.

However, the CSL 2006 does not define the 'tippees' as insiders. Law makers of the Chinese market adopt a theory of fiduciary duty to define its notion of insiders. Huang (2007:29) indicates that 'he undeveloped and inadequate notion of fiduciary duty in China may pose a considerable obstacle to adopting fiduciary-duty-based theories'. Although Chinese companies have been experiencing economic reform for decades, there is a lack of sophistication in the use of the principle of fiduciary duty in the Chinese market. As a result, if the principle of fiduciary duty is used as criteria it cannot effectively include all insiders who engage in illegal insider trading activities. Thus, the theory of fiduciary duty should be replaced by theory of equal access

(or theory of disclosure of information or abstinence from trading), which will be easy to apply in Chinese securities market.

Currently, the principle of fiduciary duty is unsophisticated in Chinese listed companies (Huang, 2007; Shen 2008). Under this circumstance, use of the principle of fiduciary duty cannot effectively distinguish insiders. Instead, the principle of equal access will simplify the requirements of evidence, thereby increasing the regulatory efficiency against insider trading (Huang, 2005). Low evidence requirement will help the market watchdog of the Chinese securities market easily catch the suspects who violate insider trading rules. Thus, it may be better to use the theory of equal access to distinguish the insiders.

The principle of equal access requires that people who have material information which they are waiting to disclose to the market must not trade shares using that information. This ensures that few investors have information advantage in the market. Compared with the theory of fiduciary duty, the theory of equal access will be easily applied in the Chinese market. Under this theory both tippers and tippees will be prohibited from trading shares using material information. Although tippees do not work for the companies, they have the chance to access inside information through being tipped by corporate insiders. Compared with other investors, tippees therefore have an information advantage, and thus, both tippers and tippees are taking advantage of them. If the tippers are guilty of insider trading activities, tippees, who receive the inside information from tippers, should also be considered guilty. As mentioned above, the scope of the definition of an insider will determine the quality of insider trading legislation. Thus, law makers for the Chinese market need to expand their definition to increase the quality of public regulation of the Chinese market.

8.2.1.2. Reform of the regulatory authority

The CSL 2006 extends the investigatory power of the China Securities Regulatory Commission (CSRC), which is the Chinese market watchdog. Compared with the FSA, however, the CSRC is still an unsophisticated market watchdog in global terms. The CSRC lacks power to subpoena suspects of illegal insider trading. The power to subpoena is very important to a market regulatory authority, since it plays a key role in collecting evidence of insider trading (Xu and Zheng, 2007). Although the CSL 2006 provides the CSRC with the power to freeze assets and seize other evidence to prove insider trading, the absence of a power of subpoena reduces the efficiency of insider trading investigations by the CSRC, since it cannot directly interview suspects. Instead, the CSRC has to inform other institutions, such as the police, which do have the power to subpoena those suspects. This will prolong the investigation period of insider trading cases, thereby reducing the effectiveness of the CSRC. Thus it is necessary to give the power of subpoena to the CSRC to strengthen its investigative efficiency.

Secondly, compared with other market regulatory agencies, such as the Financial Service Authority (FSA), the CSRC lacks power to prosecute the suspects of insider trading. Under the Financial Services and Market Act (FSMA) 2000, which is a law of the UK financial market, the FSA has authority to prosecute those suspected of insider trading itself. However, the CSRC has to rely on the People's Procuratorate, the prosecution authority in China, to prosecute insider trading suspects. However, the People's Procuratorate lacks experience of white collar crime, and especially of illegal trading activities in the securities market, like insider trading. While it has considerable experience of

criminal cases, the People's Procuratorate cannot effectively help the CSRC to increase the quality of its insider trading regulation. The CSRC needs to be given the power of prosecution; if it had this, the knowledge it has would help it develop a suitable prosecution strategy and increase the deterrence value of market regulation. Therefore, the CSRC should have the power to prosecute insider trading cases itself.

The Chinese capital market is still a developing market in global terms. Thus, compared with the western developed market, it lacks sophisticated and rational investors. Therefore, there needs to be an institution that takes on the responsibility of creating more sophisticated investors in the Chinese market. In the UK market, one of the major regulatory objectives of the FSA is to increase investor awareness. To achieve this objective, the FSA strengthens its public promotion to ensure that individuals understand the financial markets, and to motivate them to develop a sophisticated investment habit. At the same time, the FSA requires financial institutions to provide professional and constructive financial suggestions to facilitate their customers' understanding of risk in the financial market. As a watchdog in an emerging market, the CSRC should assume the duty of developing more sophisticated investors in the Chinese market. The CSRC can draw on the experiences of the FSA. The CSRC could strengthen its public promotion work to help individuals in the market to a greater understanding of it. Currently, the CSRC has an official newspaper and website to convey regulatory policy and other important news to the market. Using both these, the CSRC could convey more information about the stock market and investment skill to investors. Additionally, the CSRC could emulate the practice of the FSA in requiring financial companies to provide better

financial assistance and advice to investors, thereby helping them improve their investment knowledge and skills.

Additionally, the CSRC should motivate Chinese investors to learn about corporate governance. If investors have more knowledge about corporate governance, they will be more likely to demand that companies increase the quality of their corporate governance. Under this circumstance, companies will have to comply with the requirements of their shareholders. As the market develops, investors will have more opportunities to take part in the process of corporate decision making. Under this circumstance, the companies will have to take notice of the requirements and pressure of the investors. If investors understood corporate governance and its importance, they would be able to influence companies to adopt a good corporate governance mechanism, which in turn would protect them and align managerial activities with the interests of the companies.

8.2.2. Reform of corporate governance mechanism

8.2.2.1. Code of corporate governance

The Combined Code, which is the corporate governance code in the UK market, requires companies that are listed on the FTSE-350 to fully comply with it, since these companies can afford the cost of this full compliance. In the Chinese securities market, the code of corporate governance could set a higher standard of requirement for large companies. This would motivate them to adopt an advanced corporate governance mechanism. Currently, the Chinese market is building a corporate governance index system to evaluate the practice

of corporate governance of Chinese listed companies. For companies which consistently have a poor record of corporate governance practice, the new code of corporate governance should contain provisions that require these companies to improve the quality of their corporate governance. Good corporate governance will increase investor confidence and facilitate the development of the Chinese securities market.

Secondly, the CSRC should regularly upgrade the content of the code of corporate governance. The current code of corporate governance for the Chinese market was issued on 20th Jan, 2002, and there have been no new codes issued since then. At the same time, the Chinese market has been experiencing a high number of changes during the past few years. Thus, the content of the old code is no longer adequate for the development of corporate governance. Under this circumstance, the CSRC should copy the practice of the UK market that regularly updates the content of its code of corporate governance. The developments in the Chinese securities market means that the provisions of the corporate governance code are inadequate in the current market environment. Because of this, the corporate governance code will not help Chinese listed companies increase the quality of their practice. Thus, it is necessary to update the code to drive Chinese listed companies to improve the quality of their corporate governance.

The former code also fails to take into account the effect of institutional investors on corporate governance. As the market develops, the institutional investors are becoming important market participants in China. However, the code of corporate governance of the Chinese market fails to include this new development   Institutional investors will reduce the influence of single

shareholders on listed companies, and they will have the ability to impose supervisory pressure on executives, to encourage them to improve firm performance. Thus, it is necessary to consider the effect of institutional investors on the quality of corporate governance; a new code would motivate institutional investors to become actively involved in the firm's management.

Finally, the new code would provide a clearer definition of the duties and responsibilities of independent directors. Although the corporate governance code of the Chinese securities market provides criteria for the qualification of independent directors, there is no clear definition of their role. This means that there is no way of assessing their performance. Hence, this lack of a defined role means that independent directors are unlikely to work effectively in Chinese listed companies. Thus, it is necessary to provide a clear prospectus for independent directors, to increase the importance of their role on the boards of Chinese listed companies.

8.2.2.2. Reforms of ownership structure

It would seem that the ownership structure of Chinese listed companies generates a series of problems for corporate governance in the Chinese securities market. Hence, solving these problems by reforming the ownership structure is an important precondition for the improvement of corporate governance in Chinese listed companies.

Although stock segmentation used to effectively protect the interests of the state, as the market developed stock segmentation became a barrier of the future development of the Chinese market. Stock segmentation exacerbated conflicts of interest among investors, and thereby generated a serious agency problem in the Chinese listed companies. Transactions of non-tradable shares

had to be approved by the market regulatory authority, and thus they had low liquidity, which led to external investors having few opportunities to influence firm management. Thus, the market mechanism could not effectively influence Chinese listed companies. The elimination of non-tradable shares gives the market mechanism more opportunity to influence companies, and this will provide better protection to investors and improve firm performance.

The empirical results that are represented in tables 5-1 to 5-9 indicate that the elimination of non-tradable shares, contrary to original expectation, decreases firm performance of Chinese listed companies. At the same time, there is no evidence that the elimination of non-tradable shares affects information leakage. Although these results indicate that the elimination of non-tradable shares has had unexpected effects on the quality of the corporate governance mechanism, this policy of non-tradable shares elimination should not be terminated.

The elimination of non-tradable shares motivates the market mechanism to influence listed companies in the Chinese market. External investors had few opportunities to enter the process of corporate decision making due to non-tradable shares. As transactions of non-tradable shares had to be approved by the market regulatory agent, large shareholders became entrenched in the market as they held the majority of these shares. As a consequence of this, the interest of majority (holding) shareholders determined the choice of a corporate governance mechanism and firm management. Thus, there were serious conflicts of interest between large shareholders and other corporate participants in the Chinese listed companies. The elimination of non-tradable shares removes the trading restriction; this increases market liquidity, as it increases

the supply of shares. This enables more investors to enter the market, which will disperse the ownership structure of the Chinese listed companies. This in turn will reduce the substantial influence of large shareholders, especially majority (holding) shareholders, on listed companies.

These new investors will require listed companies to reduce the information asymmetry between companies and shareholders. The corporate transparency of listed companies will give shareholders more opportunity to monitor corporate executives and majority shareholders. As a result, there will be fewer conflicts of interest between corporate participants. Poorly performing executives will be replaced by others to improve firm performance if there is less information asymmetry. The activities of corporate insiders will be known to the market and this reduces the profitability of market fraud. Thus, the elimination of non-tradable shares should not be reversed.

The unexpected negative effect of the proportion of tradable shares on firm performance and information leakage result from the problem of the free-rider. This problem arises when individual investors lack the ability and desire to monitor the quality of the corporate governance mechanism of listed companies. Because of this, the Chinese securities market needs more institutional investors; they will represent the outside investors in monitoring the listed companies. According to the empirical results from Chapter 5, the institutional investors positively affect firm performance. Thus, one possible solution to the problem of the free-rider is to increase the number of institutional investors. The Chinese securities market needs to facilitate that increase, to motivate them to reduce the problem of the free-rider. Additionally, the market regulatory agency should take responsibility for promoting the development of

skilled individual investors. This will motivate the individual investor to think more about the listed companies and this in turn will increase the supervisory pressure supervision on them. This will also reduce the problem of the free-rider.

Besides stock segmentation, another problem of the ownership structure in Chinese listed companies is state ownership. Although empirical results do not support the statement that state ownership will exacerbate information leakage in Chinese listed companies, this does not mean that state ownership should not be reformed. Although the state shareholders are less likely to expropriate the rights of small shareholders, they will decrease the regulatory efficiency of the Chinese securities market watchdog. Because of the relationship between state shareholders and the market regulatory agency, the latter is unable to effectively monitor listed companies, especially state owned companies. Although the empirical results of this thesis indicate that state ownership has no significant influence on firm performance of the Chinese listed companies in general, state ownership still needs to be changed. State ownership can result in Chinese listed companies being influenced by non-commercial factors. For example, state owned listed companies might have to undertake some task which is orientated by a political policy, and this could decrease the managerial efficiency of the companies. Thus, state ownership should be reformed.

However, the reform of state ownership has to take into account the interests of the state. In the foreseeable period the influence of the state cannot be reduced, since it wishes to maintain its influence on the Chinese economy; if reform damages the interests of the state, reform will be harder to achieve. The following proposal might be a solution to this: state ownership should be

concentrated in specific industries. Through this concentration, the government will keep its substantial influence on economic development, since these key industries are essential to the economic development of China. Concentration of state ownership will free other Chinese listed companies from influence by the government's political agenda. The China Securities Regulation Commission (CSRC), which is the watchdog of the Chinese securities market, will be more able to genuinely monitor companies, in order to increase fairness and integrity in the market. The concentration of state ownership will give the market mechanism more opportunity to influence Chinese listed companies. This will motivate them to comply with the market mechanism, and the management of Chinese listed companies will be driven by commercial factors, and make more appropriate managerial decisions.

8.2.2.3. Reform of board of directors and board of supervisors

A good corporate governance mechanism relies on an effective board of directors. The empirical results of this thesis indicate that boards of directors fail to increase firm performance and corporate transparency of the Chinese listed companies. Thus, boards of directors should be reformed further.

The performance and efficiency of a board of directors rely on the level of its independence. Chinese listed companies need more qualified people to work as independent directors to improve board performance. As mentioned above (Chapter 5 and 7), the inappropriate ownership structure leads to the large shareholder having too much influence on the nomination process of independent directors, which reduces the quality of those appointed. Thus, an increase in board independence of the Chinese listed companies depends on

the results of the reform of ownership structure. Secondly, the limitation of human resource reduces the effectiveness and performance of independent directors in Chinese listed companies. The Chinese securities market needs more qualified independent directors to improve the quality of the corporate governance mechanism. To close the gap between supply and demand of independent directors, market participants need the CSRC to increase the quality of the human resource. As a market regulatory agent, the CSRC understands what is meant by a qualified independent director, and thus it should strengthen the training of independent directors. This will help the candidates increase their capacity to work effectively as independent directors in listed companies.

The CSRC should regularly review the independent directors to ensure they are maintaining their independence. Additionally, the CSRC should establish a database to record the performance of independent directors, and disclose this information to the market. This will create pressure on the independent directors to maintain their reputations. If independent directors cease to act independently, the cost will be loss of reputation and this will affect their future careers in the market. Besides the CSRC, companies also should take on the responsibility of improving the quality of their independent directors. Companies should provide training courses for them which will ensure that independent directors can properly carry out their duties. However, the success of training independent directors depends on the independence of the nomination process. If the candidates are not really independent from the corporate insiders, none of these measures mentioned above will improve the quality of their work.

Secondly, relevant legislation and codes should be reformed to motivate independent directors to actively perform their duties. The current corporate governance code and laws of the Chinese securities market fail to allocate clear responsibilities and obligations for independent directors. Thus, independent directors of Chinese listed companies are less likely to monitor their companies. Additionally, this phenomenon means that Chinese investors are less inclined to trust independent directors to monitor the listed companies and increase corporate transparency. Therefore, a clear definition of their role will improve the performance of independent directors, and ensure they have more influence on listed companies. The code of corporate governance also needs to increase the percentage of independent directors on a board of directors. A low proportion of independent directors on a board impair their effectiveness. Regulation requires that the minimum proportion of the independent directors on a board is 1/3. The majority of the Chinese listed companies have complied with this minimum requirement. However, a small number of independent directors on a board mean they have few opportunities to really influence their companies. Thus, it is necessary to increase the independence of the board of directors in the Chinese listed companies, thereby motivating them to effectively monitor their companies.

To increase performance and effectiveness of the board of directors, and especially the performance and efficiency of independent directors, the board of supervisors also needs to be reformed. To some extent, the establishment of a board of supervisors generates a conflict of duty between it and the board of directors, thereby further reducing the quality of internal governance. Relevant legislation and codes make both boards responsible for internal governance to protect the rights of shareholders. Thus, the boards of directors and of

supervisors become two pillars of the internal governance of Chinese listed companies. In the former CSL, the board of supervisors had a purely advisory role for the board of directors, whereas the new CSL allocates some actual monitoring power to them. The new regulatory power gives the board of supervisors more incentive to perform its role; however, it also exacerbates the power rivalry between it and the board of directors. If both institutions have the same power and duties, it may make the board of directors and the board of supervisors fail in their monitoring of their companies. Thus, it is necessary to redesign the internal governance mechanism of Chinese listed companies. To some extent, the role of supervisors is similar to that of the independent directors, and thus both boards should be combined into one. This will simplify the internal governance structure and give it a better chance of being successful. Under the new internal governance regime, the executive directors have a duty to make managerial decisions for their companies. Independent directors have a duty to represent the majority of shareholders in monitoring the managerial activities of the Chinese listed companies.

8.3.   Summary of thesis

The recent series of financial scandals and crises have impaired investor confidence, as well as the future development of the financial market. Thus, the majority of global financial markets have begun to take a series of actions to restore the global financial system and rebuild investor confidence. One of these is to improve the quality of the corporate governance mechanism in listed companies. Because of the managerial hierarchy of the modern listed company, the majority of shareholders do not have opportunities to monitor the managerial activities of corporate insiders. Thus, the corporate governance

mechanism is employed to align the managerial activities with the interests of shareholders. Additionally, the corporate governance mechanism is employed to reduce conflicts of interest between large shareholders and small shareholders. A decrease in conflicts of interest will reduce self-interested activities and agency cost, thereby increasing corporate information transparency and firm performance.

As one of the foremost emerging markets in the world, the corporate governance mechanism of Chinese listed companies is not as sophisticated as that of companies in the developed markets. Although the Chinese financial market has experienced economic reforms for 30 years, the market mechanism is still unsophisticated. Investors in the Chinese market complain that their investment cannot be effectively protected by the market's regulatory system, and that the ownership structure of the companies restricts the improvement of firm performance. For instance, investors in the Chinese financial market state that there are serious insider trading activities in the market, and the market regulation system cannot effectively regulate them (Huang, 2007). The ownership structure of the Chinese listed companies generates serious conflicts of interest among shareholders and therefore reduces firm performance (Li *et al.*, 2008).

Information leakage may cause illegal insider trading activities, since anyone using leaked inside information to trade shares in advance of public disclosure is breaking the law prohibiting insider trading (Keown and Pinkerton, 1981). In the Chinese securities market, weak regulation (Chen, 2007) and information asymmetry (Wu, 2004) may result in information leakage being widespread. The majority of insider trading cases in the Chinese securities market are based on information leakage prior to the earnings announcement

date (cs.com.cn, 2010). Thus, the information leakage may lead to insider trading in Chinese securities market. A good corporate governance mechanism will increase the transparency of a listed company and decrease the information asymmetry between companies and shareholders. This may reduce information leakage. To improve performance, a company has to reduce the conflicts of interest among its participants; with fewer conflicts of interest, there will be a lower agency cost in a company. A good corporate governance mechanism will reduce the conflict of interest among corporate participants, thereby increasing firm performance of the companies (Klapper and Love, 2004).

The purpose of this study is to empirically test the effects of the current corporate governance mechanism of Chinese listed companies on information leakage prior to earnings announcements and on firm performance. This is done by:

(i)   Evaluation of the effects of corporate governance on firm performance in Chinese companies.

(ii)   Empirical analysis of information leakage in the Chinese securities market.

(iii)   Empirical assessment of the relationship between corporate governance and information leakage in Chinese companies.

(iv)   General assessment of the effects of corporate governance on firm performance and information leakage in Chinese companies.

This thesis empirically evaluates the effect of a corporate governance mechanism on firm performance of Chinese listed companies. It employs several proxies to represent ownership structure, board of directors,

subcommittees, and board of supervisors. The empirical results of this study are consistent with the following theoretical predictions.

(i) Institutional investors will help increase the influence of the external shareholders to put pressure on listed companies to improve firm performance of Chinese listed companies.

(ii) Subcommittees increase the quality of the corporate governance mechanism of the listed companies to help them reduce the conflict of interest between executives and shareholders, which in turn helps companies to improve firm performance.

In general, state ownership has no significant effect on firm performance of the listed companies. On the one hand, state ownership will help the companies achieve a good performance. Political influence may help state owned companies to perform well in the market. However, on the other hand, state ownership will decrease the operational efficiency of listed companies, since the managerial decisions of state shareholders are driven by political factors. Thus, in general, state ownership does not affect firm performance of Chinese listed companies.

The board of directors and board of supervisors have no significant effect on firm performance of the Chinese companies. As mentioned in section 3.3, large shareholders, especially the majority (holding) shareholder, have substantial influence in Chinese listed companies. They can determine the composition of the board of directors and board of supervisors in their own interests. In this case, the board of directors and the board of supervisors cannot work effectively, and thus they have no significant effect on firm performance.

The empirical results of event study of this thesis indicate that there is significant information leakage in the Chinese securities market. This may therefore suggest illegal insider trading activities in the Chinese securities market.

The empirical results indicate that the proportion of non-tradable shares does not affect information leakage. This is inconsistent with the hypothesis that the increase in proportion of tradable shares will decrease the information leakage.

After market reform, trading restrictions on the majority of shares in Chinese listed companies have been removed. This is attracting more investors to enter the Chinese securities market, and it is facilitating the decrease in ownership concentration of the companies. Under this circumstance, the market mechanism may have an opportunity to affect Chinese listed companies, motivating them to increase the quality of their corporate governance mechanisms. However, the elimination of non-tradable shares will lead to the problem of the free-rider in Chinese market. The majority of Chinese investors are small shareholders, and they lack the ability and desire to monitor the listed companies. Under this circumstance, executives and large shareholders will have more opportunities to expropriate the interest of small shareholders. As a consequence, this study finds that the elimination of tradable shares do not affect information leakage in Chinese stock market in general.

The board of directors and the board of supervisors have no significant effect on firm performance and the phenomenon of information leakage. Although market reform begins to disperse the inappropriate ownership concentration of Chinese listed companies, large shareholders, especially the

majority (holding) shareholder, still have a substantial influence on them. Thus, these shareholders still have opportunities to influence the choice of a corporate governance mechanism, such as the composition of the board of directors and the board of supervisors (Rajagopalan and Zhang, 2008; Zhou, 2009; Kang *et al.,* 2008). Under this circumstance, these boards lack actual managerial discretion, thereby having no significant influence on firm management, and so the board of directors cannot reduce the phenomenon of information leakage.

According to the empirical results of Chapter 5 and Chapter 7, the key factor of the corporate governance mechanism in Chinese listed companies is the ownership structure. If there is no appropriate ownership structure, the corporate governance mechanism cannot effectively increase corporate transparency and firm performance. Additionally, the reform of ownership structure will provide other components of the corporate governance mechanism with opportunities to influence corporate transparency and firm performance. Thus, the increase in quality of corporate governance depends on the reform of the ownership structure of Chinese listed companies.

Taking into account the empirical results from previous chapters, this study provides the following recommendations for the Chinese securities market:

- The current policy of the reduction of non-tradable shares should be continued. Although the higher proportion of tradable shares may decrease the quality of corporate governance mechanism of the Chinese listed companies, the reduction of non-tradable shares persuades Chinese listed companies to consider the quality of corporate governance and investor protection.

- The legislation and the regulatory agent of the Chinese market should adopt the principle of equal access to expand the definition of insider and increase the deterrence value of insider trading regulation.

- The code of corporate governance of the Chinese market should motivate independent directors to become involved in corporate decision making. The code along with other laws should increase board independence of Chinese listed companies and increase the influence of independent directors on corporate governance. Additionally, the Chinese market should motivate institutional investors to actively monitor the listed companies.

- The regulatory authority of the Chinese market should be given more power in order to undertake the duty of developing the quality of Chinese investors.

8.4. Contributions

This study contributes to the literature in the following ways:

- This study analyses the relationship between the corporate governance mechanism and firm performance in Chinese companies. Through the use of recent market data, this thesis shows that the optimal ownership structure will have positive effects on firm performance in Chinese companies. The recent reforms have positive effects on firm performance in Chinese companies.

- This study empirically evaluates information leakage in the Chinese market. This provides evidence that the Chinese

security market needs more reform to increase corporate transparency, to reduce information leakage and to protect the interests of investors.

- The thesis analyses the effect of the corporate governance mechanism on information leakage in the Chinese securities market. This thesis finds that Chinese companies need to increase the quality of corporate governance to reduce information leakage and thereby protecting the interest of Chinese investors.

- This thesis empirically evaluates the effects of corporate governance on firm performance and information leakage in the Chinese market. This thesis then provides recommendations to help Chinese companies to increase firm performance and decrease information leakage.

8.5. Limitations and future research

In this thesis, information leakage is measured by the price changes prior to announcement day, price-run up index, and trading volume. Results indicate that there are significant changes in stock price prior to an announcement day in the Chinese market. This may suggest that information leakage in the Chinese securities market is widespread. However, information leakage is a complex phenomenon in the stock market, and the proxies used in this thesis may not measure the information leakage as accurately as they should. Therefore, future research should focus on finding alternative proxies.

Empirical findings of this thesis indicate that the state still has significant influence on Chinese companies even after the reforms. This influence may

affect choice of corporate governance (e.g. nomination of board of directors and board of supervisors) in Chinese companies. The government will appoint members of government or China Communist Party (CCP) to sit on companies' board. In this case, members of the two boards in Chinese companies, especially in state owned companies, may not really work for the majority of shareholders. Because of the time limitation, this thesis did not explore the political background of the members of the two boards. Thus, one of the future research directions could be to find out the political ties of the board members to ascertain who are really independent from the government, and examine whether these members help companies improve their performance and reduce information leakage. Uncovering the effects of political ties in the effectiveness of corporate governance will inform the market regulator and the policy makers of a way forward in future governance reforms.

Empirical findings in Chapter 6 of this thesis indicate that there is significant information leakage prior to corporate announcements in the Chinese securities market. However, results reported in Chapter 7 suggest that the majority of corporate governance mechanisms employed by Chinese companies do not diminish information leakage. Thus, it is worthwhile to introduce new variables into this relationship to gain new insights. The special cultural background of Chinese market may cause the failure of corporate governance in Chinese companies. For instance, the guanxi network among Chinese society may hinder the effectiveness of corporate governance on information leakage. In this case, the incorporation of cultural aspects into the examination of the relationship between corporate governance and information leakage might be a fruitful research area to pursue.

Empirical findings in Chapter 5 of this thesis show that institutional investors have a positive effect on the performance in non-financial companies in China. However, financial companies are not included in the data sample of this thesis. The financial industry is a risk sensitive industry. Financial companies may need a more complex governance mechanism to avoid the potential risk. In this case, it is worthwhile assessing the relationship between corporate governance and firm performance in Chinese financial companies. Therefore, a recommended research topic for future study is the effect of institutional ownership on firm performance in Chinese financial companies.

Appendix 1 corporate governance and firm performance (ROE) in Chinese listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M4:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M5:FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M6: FIRM PERFORMANCE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3	M4	M5	M6
Firm size	0.062	0.061	0.064	0.079	0.079	0.082
	(3.928)***	(3.882)***	(4.068)***	(5.075)***	(5.040)***	(5.236)***
Leverage (debt to equity)	0.023	0.023	0.023	0.022	0.022	0.022
	(4.887)***	(4.885)***	(4.870)***	(4.684)***	(4.680)***	(4.669)***
Ownership concentration	0.511	0.506	0.522			
	(4.225)***	(4.180)***	(4.320)***			
State ownership				-0.008	-0.012	-0.001
				(-0.111)	(-0.165)	(-0.0.007)
institutional ownership	0.220	0.220	0.221	0.221	0.220	0.222
	(21.276)***	(21.241)***	(21.392)***	(21.155)***	(21.121)***	(21.302)***
tradable shares	-0.457	-0.463	-0.445	-0.596	-0.603	-0.603
	(-7.739)***	(-7.855)***	(-7.571)***	(-11.230)***	(-11.347)***	(-11.049)***
Size of BOD	-0.066	-0.065	-0.066	-0.105	-0.103	-0.107
	(-0.826)	(-0.814)	(-0.827)	(-1.312)	(-1.292)	(-1.330)
Independence of BOD	-0.316	-0.325	-0.291	-0.341	-0.350	-0.314
	(-0.944)	(-0.973)	(-0.870)	(-1.016)	(-1.044)	(-0.936)
Leadership of BOD	-0.076	-0.077	-0.077	-0.066	-0.067	-0.068
	(-1.457)	(-1.465)	(-1.471)	(-1.256)	(-1.266)	(-1.277)
Audit committee	0.028			0.037		
	(0.810)			(1.076)		
Compensation committee		0.061			0.069	
		(1.810)*			(2.042)**	
Nomination committee			-0.034			0.029
			(-1.044)			(-0.878)
Size of BOS	0.070	0.069	0.071	0.073	0.072	0.073
	(1.401)	(1.385)	(1.406)	(1.436)	(1.425)	(1.424)
Market reform	-0.128	-0.116	-0.149	-0.129	-0.118	-0.153
	(-3.377)***	(-3.103)***	(-4.093)***	(-3.398)***	(-3.144)***	(-4.180)***
C	-3.219	-3.231	-3.215	-3.296	-3.311	-3.286
	(-10.884)***	(-10.925)***	(-10.871)***	(-10.904)***	(-10.955)***	(-10.872)***
R²	0.15	0.15	0.15	0.15	0.15	0.15
Adj. R²	0.15	0.15	0.15	0.15	0.15	0.15

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 2 corporate governance and firm performance (ROA) in Chinese listed companies

M1: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUAC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUCC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUNC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M4:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUAC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M5:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUCC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P+ β_9DUNC + β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA

	M1	M2	M3	M4	M5	M6
Firm size	-0.114	-0.113	-0.110	-0.098	-0.097	-0.094
	(-7.005)***	(-6.973)***	(-6.792)***	(-6.063)***	(-6.024)***	(-5.836)***
Leverage (debt to equity)	-0.015	-0.015	-0.015	-0.016	-0.016	-0.016
	(-4.250)***	(-4.255)***	(-4.251)***	(-4.315)***	(-4.320)***	(-4.312)***
Ownership concentration	0.748	0.750	0.769			
	(5.817)***	(5.836)***	(5.989)***			
State ownership				0.202	0.204	0.219
				(2.552)***	(2.572)***	(2.759)***
institutional ownership	0.244	0.245	0.246	0.248	0.248	0.250
	(22.212)***	(22.233)***	(22.406)***	(22.367)***	(22.394)***	(22.596)***
tradable shares	-0.507	-0.507	-0.487	-0.655	-0.655	-0.635
	(-8.112)***	(-8.115)***	(-7.803)***	(-11.626)***	(-11.628)***	(-11.307)***
Size of BOD	-0.045	-0.044	-0.0452	-0.1104	-0.109	-0.113
	(-0.531)	(-0.514)	(-0.529)	(-1.298)	(-1.282)	(-1.323)
Independence of BOD	-0.096	-0.092	-0.053	-0.083	-0.078	-0.036
	(-0.271)	(-0.259)	(-0.149)	(-0.233)	(-0.219)	(-0.102)
Leadership of BOD	-0.069	-0.071	-0.071	-0.066	-0.067	-0.068
	(-1.240)	(-1.265)	(-1.275)	(-1.168)	(-1.195)	(-1.213)
Audit committee	0.088			0.095		
	(2.396)**			(2.556)***		
Compensation committee		0.088			0.093	
		(2.431)**			(2.568)***	
Nomination committee			-0.021			-0.017
			(-0.597)			(-0.492)
Size of BOS	0.067	0.066	0.067	0.0496	0.048	0.048
	(1.246)	(1.227)	(1.255)	(0.904)	(0.882)	(0.884)
Market reform	-0.075	-0.077	-0.117	-0.077	-0.080	-0.121
	(-1.848)*	(-1.937)*	(-3.012)***	(-1.897)*	(-2.000)**	(-3.103)***
C	-1.630	-1.6427	-1.617	-1.575	-1.588	-1.552
	(-5.279)***	(-5.320)***	(-5.235)***	(-4.986)***	(-5.024)***	(-4.911)***
R^2	0.13	0.13	0.13	0.13	0.13	0.13
Adj. R^2	0.13	0.13	0.13	0.13	0.13	0.13

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 3 corporate governance and firm performance (Tobin's Q) in Chinese listed companies

M1: FIRM PERFORMANCE = α + $β_1$ROE+ $β_2$ LNBV + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M2: FIRM PERFORMANCE = α + $β_1$LNBV + $β_2$ LNBV + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M3: FIRM PERFORMANCE = α + $β_1$ ROE + $β_2$ LNBV + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M4:FIRM PERFORMANCE = α + $β_1$ ROE + $β_2$ LNBV + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M5:FIRM PERFORMANCE = α + $β_1$ ROE + $β_2$ LNBV + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M6: FIRM PERFORMANCE = α + $β_1$ ROE + $β_2$ LNBV + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

Where LNBV is log (total asset of company). ROE is the return on equity. LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q

	M1	M2	M3	M4	M5	M6
ROE	0.108	0.110	0.112	0.115	0.117	0.119
	(1.826)*	(1.838)*	(1.856)*	(1.874)*	(1.890)*	(1.916)*
Firm size	-0.2414	-0.240	-0.239	-0.236	-0.234	-0.233
	(-27.238)***	(-26.969)***	(-26.692)***	(-29.741)***	(-29.415)***	(-29.031)***
Ownership concentration	0.268	0.286	0.311			
	(2.077)**	(2.208)**	(2.405)**			
State ownership				0.081	0.087	0.095
				(2.048)**	(2.175)**	(2.365)**
institutional ownership	0.087	0.087	0.088	0.088	0.089	0.090
	(17.167)***	(17.191)***	(17.255)***	(17.180)***	(17.208)***	(17.289)***
tradable shares	-0.294	-0.285	-0.271	-0.345	-0.339	-0.329
	(-6.387)	(-6.152)***	(-5.859)***	(-11.683)***	(-11.388)***	(-11.021)***
Size of BOD	0.057	0.059	0.060	0.034	0.034	0.033
	(1.407)	(1.436)	(1.459)	(0.858)	(0.850)	(0.820)
Independence of BOD	0.135	0.146	0.159	0.137	0.148	0.162
	(0.829)	(0.890)	(0.966)	(0.829)	(0.890)	(0.967)
Leadership of BOD	0.014	0.013	0.013	0.018	0.017	0.017
	(0.409)	(0.369)	(0.370)	(0.521)	(0.488)	(0.500)
Audit committee	0.087			0.089		
	(4.945)***			(5.009)		
Compensation committee		0.060			0.0618	
		(3.429)***			(3.471)***	
Nomination committee			0.021602			0.022
			(1.255)			(1.238)
Size of BOS	0.036	0.035	0.036	0.027	0.026	0.025
	(1.346)	(1.303)	(1.311)	(0.972)	(0.908)	(0.886)
Market reform	-0.368	-0.381	-0.397	-0.369	-0.382	-0.399
	(-18.504)***	(-19.287)***	(-20.467)***	(-18.348)	(-19.135)***	(-20.357)***
C	3.900	3.898	3.911	3.928	3.928	3.944
	(27.013)***	(26.854)***	(26.797)***	-26.392	(26.218)***	(26.145)***
R²	0.1	0.09	0.08	0.07	0.06	0.04
Adj. R²	0.09	0.08	0.07	0.07	0.06	0.04

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Appendix 4 corporate governance and firm performance (ROE) in state owned listed companies

M1: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M4:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M5:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3	M4	M5	M6
Firm size	0.072	0.072	0.073	0.079	0.078	0.080
	(4.097)***	(4.065)***	(4.180)***	(4.543)***	(4.509)***	(4.618)***
Leverage (debt to equity)	0.002	0.002	0.002	0.001	0.001	0.001
	(0.317)	(0.320)	(0.303)	(0.241)	(0.245)	(0.227)
Ownership concentration	0.735	0.733	0.738			
	(5.266)***	(5.252)***	(5.288)***			
State ownership				0.850	0.844	0.859
				(5.404)***	(5.373)***	(5.469)***
institutional ownership	0.232	0.231	0.232	0.235	0.235	0.235
	(20.058)***	(20.044)***	(20.089)***	(20.391)***	(20.375)***	(20.424)***
tradable shares	-0.322	-0.325	-0.316	-0.249	-0.254	-0.241
	(-4.821)***	(-4.875)***	(-4.744)***	(-3.335)***	(-3.398)***	(-3.230)***
Size of BOD	-0.110	-0.109	-0.111	-0.137	-0.136	-0.138
	(-1.217)	(-1.206)	(-1.229)	(-1.525)	(-1.515)	(-1.534)
Independence of BOD	-1.062	-1.069	-1.044	-1.060	-1.067	-1.039
	(-2.789)***	(-2.808)***	(-2.739)***	(-2.784)***	(-2.803)***	(-2.729)***
Leadership of BOD	-0.033	-0.033	-0.034	-0.040	-0.040	-0.041
	(-0.512)	(-0.506)	(-0.523)	(-0.614)	(-0.607)	(-0.630)
Audit committee	0.001			-0.006		
	(0.021)			(-0.164)		
Compensation committee		0.020			0.012	
		(0.518)			(0.324)	
Nomination committee			-0.033			-0.042
			(-0.894)			(-1.138)
Size of BOS	0.101	0.101	0.101	0.076	0.076	0.076
	(1.859)*	(1.852)*	(1.863)*	(1.407)	(1.404)	(1.408)
Market reform	-0.092	-0.085	-0.100	-0.079	-0.072	-0.087
	(-2.190)**	(-2.047)**	(-2.492)**	(-1.877)*	(-1.730)*	(-2.147)**
C	-3.057	-3.060	-3.057	-3.075	-3.076	-3.074
	(-9.317)***	(-9.325)***	(-9.317)***	(-9.374)***	(-9.377)***	(-9.374)***
R²	0.18	0.18	0.19	0.19	0.19	0.19
Adj. R²	0.18	0.18	0.18	0.18	0.18	0.18

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Appendix 5 corporate governance and firm performance (ROA) in state owned listed companies

M1: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: FIRM PERFORMANCE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M4:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M5:FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: FIRM PERFORMANCE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA

	M1	M2	M3	M4	M5	M6
Firm size	-0.069	-0.068	-0.066	-0.056	-0.056	-0.054
	(-3.613)***	(-3.595)***	(-3.510)***	(-3.015)***	(-2.999)***	(-2.924)***
Leverage (debt to equity)	-0.033	-0.033	-0.033	-0.034	-0.034	-0.034
	(-5.949)***	(-5.952)***	(-5.971)***	(-6.080)***	(-6.082)***	(-6.104)***
Ownership concentration	1.147	1.149	1.153			
	(7.553)***	(7.569)***	(7.599)***			
State ownership				1.197	1.200	1.214
				(6.991)***	(7.012)***	(7.100)***
institutional ownership	0.252	0.252	0.253	0.258	0.258	0.258
	(20.099)***	(20.109)***	(20.153)***	(20.507)***	(20.520)***	(20.566)***
tradable shares	-0.342	-0.341	-0.332	-0.270	-0.268	-0.256
	(-4.718)***	(-4.7015)***	(-4.586)***	(-3.330)***	(-3.307)***	(-3.156)***
Size of BOD	-0.062	-0.062	-0.064	-0.109	-0.109	-0.110
	(-0.632)	(-0.632)	(-0.649)	(-1.114)	(-1.116)	(-1.129)
Independence of BOD	-0.799	-0.796	-0.769	-0.794	-0.791	-0.761
	(-1.931)*	(-1.924)*	(-1.857)*	(-1.916)*	(-1.908)*	(-1.835)*
Leadership of BOD	-0.011	-0.011	-0.013	-0.018	-0.019	-0.020
	(-0.158)	(-0.161)	(-0.177)	(-0.260)	(-0.263)	(-0.285)
Audit committee	0.021			0.012		
	(0.491)			(0.286)		
Compensation committee		0.014			0.004	
		(0.330)			(0.096)	
Nomination committee			-0.040			-0.052
			(-0.993)			(-1.290)
Size of BOS	0.109	0.109	0.109	0.072	0.071782	0.072
	(1.837)*	(1.835)*	(1.8413)*	(1.214)	(1.213)	(1.214)
Market reform	-0.056	-0.059	-0.074	-0.037	-0.041	-0.055
	(-1.227)	(-1.304)	(-1.688)*	(-0.820)	(-0.897)	(-1.251)
C	-2.125	-2.128	-2.125	-2.146	-2.148	-2.146
	(-5.978)***	(-5.987)***	(-5.981)***	(-6.030)***	(-6.034)***	(-6.032)***
R^2	0.17	0.17	0.17	0.17	0.17	0.17
Adj. R^2	0.16	0.16	0.17	0.16	0.16	0.16

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 6 corporate governance and firm performance (Tobin's Q) in state owned listed companies

M1: FIRM PERFORMANCE = α + β₁ROE+ β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER + β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER+ β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M4:FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M5:FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M6: FIRM PERFORMANCE = α + β₁ ROE + β₂ LNBV + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

Where LNBV is log (total asset of company). ROE is the return on equity. LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q

	M1	M2	M3	M4	M5	M6
ROE	0.192	0.195	0.198	0.197	0.199	0.203
	(2.507)***	(2.525)***	(2.561)***	(2.575)***	(2.597)***	(2.638)***
Firm size	-0.222	-0.220	-0.218	-0.222	-0.219	-0.217
	(-27.115)***	(-26.932)***	(-26.663)***	(-27.168)***	(-26.990)***	(-26.734)***
Ownership concentration	0.096	0.104	0.112			
	(1.523)	(1.643)	(1.764)*			
State ownership				0.126	0.136	0.152
				(1.801)*	(1.941)**	(2.154)**
institutional ownership	0.093	0.093	0.094	0.093	0.093	0.094
	(16.996)***	(17.029)***	(17.119)***	(17.018)***	(17.057)***	(17.154)***
tradable shares	-0.336	-0.329	-0.320	-0.321	-0.314	-0.301
	(-11.042)***	(-10.790)***	(-10.446)***	(-9.466)***	(-9.199)***	(-8.810)***
Size of BOD	0.058	0.057	0.055	0.055	0.054	0.051
	(1.435)	(1.409)	(1.356)	(1.354)	(1.321)	(1.266)
Independence of BOD	-0.166	-0.159	-0.143	-0.166	-0.159	-0.142
	(-0.986)	(-0.941)	(-0.840)	(-0.984)	(-0.939)	(-0.837)
Leadership of BOD	-0.045	-0.046	-0.047	-0.046	-0.048	-0.049
	(-1.574)	(-1.606)	(-1.637)*	(-1.618)	(-1.654)	(-1.693)*
Audit committee	0.107			0.106		
	(5.943)			(5.873)		
Compensation committee		0.080			0.078	
		(4.582)***			(4.494)***	
Nomination committee			0.035			0.033
			(2.065)**			(1.972)**
Size of BOS	0.040	0.039	0.040	0.037	0.036	0.036
	(1.618)	(1.573)	(1.605)	(1.484)	(1.429)	(1.448)
Market reform	-0.355	-0.368	-0.388	-0.353	-0.365	-0.385
	(-18.321)***	(-19.228)***	(-20.988)***	(-18.185)***	(-19.066)***	(-20.769)***
C	3.821	3.810	3.821	3.823	3.812	3.823
	(25.644)***	(25.502)***	(25.464)***	(25.629)***	(25.486)***	(25.446)***
R²	0.29	0.28	0.28	0.28	0.28	0.27
Adj. R²	0.28	0.28	0.27	0.28	0.28	0.27

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Appendix 7 corporate governance and firm performance (ROE) in private listed companies

M1: FIRM PERFORMANCE = α + β$_1$LNBV + β$_2$ DERATIO + β$_3$ 1STPER +β4SPER + β$_5$LNTINTPER + β$_6$ LNTPER +β$_7$LNBSIZE +β$_8$ INDPER + β$_9$ ROLESE P +β$_{10}$DUAC + β$_{11}$LNSSIZE + β$_{12}$DUREFORM + C

M2: FIRM PERFORMANCE = α + β$_1$LNBV + β$_2$ DERATIO + β$_3$ 1STPER +β4SPER + β$_5$LNTINTPER + β$_6$ LNTPER +β$_7$LNBSIZE +β$_8$ INDPER + β$_9$ ROLESE P +β$_{10}$DUCC + β$_{11}$LNSSIZE + β$_{12}$DUREFORM + C

M3: FIRM PERFORMANCE = α + β$_1$LNBV + β$_2$ DERATIO + β$_3$ 1STPER +β4SPER + β$_5$LNTINTPER + β$_6$ LNTPER +β$_7$LNBSIZE +β$_8$ INDPER + β$_9$ ROLESE P +β$_{10}$DUNC + β$_{11}$LNSSIZE + β$_{12}$DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROE

	M1	M2	M3
Firm size	0.100	0.099	0.100
	(2.903)***	(2.891)***	(2.926)***
Leverage (debt to equity)	0.086	0.086	0.086
	(8.080)***	(8.077)***	(8.097)***
Ownership concentration	0.382	0.353	0.413
	-1.44	(1.329)	(1.556)
State ownership	0.161	0.132	0.184
	(0.474)	(0.390)	(0.544)
institutional ownership	0.182	0.180	0.186
	(8.170)***	(8.110)***	(8.387)***
tradable shares	-0.673	-0.693	-0.647
	(-5.501)***	(-5.663)***	(-5.308)***
Size of BOD	0.173	0.172	0.180
	(1.034)	(1.027)	(1.070)
Independence of BOD	1.288	1.285	1.322
	(1.935)*	(1.934)*	(1.985)**
Leadership of BOD	-0.117	-0.123	-0.119
	(-1.291)	(-1.354)	(-1.315)
Audit committee	0.109		
	(1.492)		
Compensation committee		0.184	
		(2.587)***	
Nomination committee			-0.027
			(-0.389)
Size of BOS	0.185	0.185	0.179
	(1.507)	(1.516)	(1.459)
Market reform	-0.211	-0.186	-0.268
	(-2.588)***	(-2.318)***	(-3.456)***
C	-5.236	-5.277	-5.160
	(-7.572)***	(-7.648)***	(-7.468)***
R²	0.15	0.15	0.15
Adj. R²	0.14	0.14	0.14

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Appendix 8 corporate governance and firm performance (ROA) in private listed companies

M1: FIRM PERFORMANCE = $\alpha + \beta_1$LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUAC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M2: FIRM PERFORMANCE = $\alpha + \beta_1$LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUCC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M3: FIRM PERFORMANCE = $\alpha + \beta_1$LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUNC + β_{11}LNSSIZE + β_{12}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: ROA

	M1	M2	M3
Firm size	-0.186	-0.186	-0.186
	(-5.749)***	(-5.767)***	(-5.749)***
Leverage (debt to equity)	-0.005	-0.005	-0.005
	(-1.015)	(-1.026)	(-0.960)
Ownership concentration	0.027	0.000	0.071
	(0.099)	(0.001)	(0.261)
State ownership	0.235	0.210	0.278
	(0.677)	(0.606)	(0.798)
institutional ownership	0.212	0.212	0.219
	(9.415)***	(9.429)***	(9.717)***
tradable shares	-0.726	-0.738	-0.681
	(-5.834)***	(-5.932)***	(-5.477)***
Size of BOD	0.017	0.020	0.027
	(0.103)	(0.120)	(0.160)
Independence of BOD	0.948	0.961	1.022
	(1.410)	(1.431)	(1.513)
Leadership of BOD	-0.148	-0.157	-0.155
	(-1.596)	(-1.691)	(-1.666)
Audit committee	0.234		
	(3.141)***		
Compensation committee		0.268	
		(3.698)***	
Nomination committee			0.030
			(0.424)
Size of BOS	0.055	0.052	0.046
	(0.438)	(0.413)	(0.362)
Market reform	-0.103	-0.099	-0.201
	(-1.236)	(-1.213)	(-2.535)**
C	-1.093	-1.111	-0.936
	(-1.640)	(-1.671)	(-1.402)
R^2	0.11	0.11	0.10
Adj. R^2	0.10	0.11	0.10

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 9 corporate governance and firm performance (Tobin's Q) in private listed companies

M1: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROE + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUAC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M2: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROEO + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUCC + β₁₁LNSSIZE + β₁₂DUREFORM + C

M3: FIRM PERFORMANCE = α + β₁LNBV + β₂ ROE + β₃ 1STPER +β4SPER + β₅LNTINTPER + β₆ LNTPER +β₇LNBSIZE +β₈ INDPER + β₉ ROLESE P +β₁₀DUNC + β₁₁LNSSIZE + β₁₂DUREFORM + C

Where LNBV is log (total asset of company). ROE is return on equity. LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: Tobin's Q			
	M1	M2	M3
ROE	-0.010	-0.010	-0.0010
	(-0.241)	(-0.234)	(-0.229)
Firm size	-0.278	-0.278	-0.278
	(-20.752)***	(-20.729)***	(-20.671)***
Ownership concentration	-0.253	-0.251	-0.239
	(-2.351)**	(-2.329)**	(-2.221)**
State ownership	-0.246	-0.247	-0.229
	(-1.824)*	(-1.825)	(-1.697)*
institutional ownership	0.066	0.067	0.068
	(7.360)***	(7.453)***	(7.599)***
tradable shares	-0.415	-0.409	-0.397
	(-7.833)***	(-7.705)***	(-7.598)***
Size of BOD	-0.042	-0.040	-0.039
	(-0.648)	(-0.612)	(-0.595)
Independence of BOD	0.481	0.493	0.497
	(1.837)*	(1.882)*	(1.895)*
Leadership of BOD	-0.007	-0.010	-0.009
	(-0.136)	(-0.189)	(-0.178)
Audit committee	0.099		
	(3.058)***		
Compensation committee		0.075	
		(2.352)**	
Nomination committee			0.050
			(1.597)
Size of BOS	0.052	0.049	0.048
	(0.903)	(0.856)	(0.827)
Market reform	-0.415	-0.428	-0.444
	(-12.331)***	(-12.859)***	(-13.544)***
C	4.563	4.581	4.610
	(16.894)***	(16.945)***	(17.073)***
R²	0.37	0.37	0.36
Adj. R²	0.36	0.36	0.36

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 10 corporate governance and information leakage – CARs (M) in Chinese listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUAC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUCC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUNC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M4: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUAC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M5: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUCC + β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER + β_4LNTINTPER + β_5LNTPER + β_6INDPER + β_7LNBSIZE + β_8ROLESE P + β_9DUNC + β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)

	M1	M2	M3	M4	M5	M6
Firm size	-0.087	-0.089	-0.091	-0.084	-0.087	-0.089
	(-3.635)***	(-3.721)***	(-3.812)***	(-3.596)***	(-3.686)***	(-3.789)***
Ownership concentration	-0.227	-0.242	-0.260			
	(-1.202)	(-1.279)	(-1.375)***			
State ownership				-0.209	-0.219	-0.226
				(-1.819)*	(-1.899)*	(-1.959)*
institutional ownership	-0.017	-0.019	-0.022	-0.021	-0.023	-0.026
	(-1.075)	(-1.178)	(-1.378)	(-1.292)	(-1.404)	(-1.611)
tradable shares	-0.125	-0.141	-0.153	-0.120	-0.135	-0.143
	(-1.364)	(-1.541)	(-1.673)*	(-1.463)	(-1.641)*	(-1.751)*
Size of BOD	0.162	0.156	0.167	0.191	0.187	0.200
	(1.285)	(1.238)	(1.323)	(1.533)	(1.500)	(1.599)
Independence of BOD	-0.263	-0.286	-0.270	-0.289	-0.313	-0.298
	(-0.509)	(-0.551)	(-0.520)	(-0.559)	(-0.603)	(-0.573)
Leadership of BOD	0.014	0.023	0.020	0.019	0.027	0.025
	(0.181)	(0.284)	(0.255)	(0.234)	(0.337)	(0.308)
Audit committee	-0.248			-0.245		
	(-4.849)***			(-4.809)***		
Compensation committee		-0.186			-0.184	
		(-3.686)***			(-3.649)***	
Nomination committee			-0.167			-0.165
			(-3.324)***			(-3.279)***
Size of BOS	0.034	0.032	0.030	0.056	0.055	0.053
	(0.431)	(0.403)	(0.375)	(0.700)	(0.684)	(0.665)
Market reform	-0.957	-0.932	-0.909	-0.958	-0.933	-0.910
	(-16.363)***	(-16.009)***	(-15.938)***	(-16.392)***	(-16.040)***	(-15.971)***
C	-1.098	-1.097	-1.145	-1.245	-1.250	-1.301
	(-2.421)**	(-2.412)**	(-2.519)**	(-2.690)**	(-2.695)**	(-2.807)**
R^2	0.11	0.11	0.11	0.11	0.11	0.11
Adj. R^2	0.11	0.10	0.10	0.11	0.10	0.10

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 11 corporate governance and information leakage – CARs (C) in Chinese listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M4: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUAC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M5: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUCC +β_{10}LNSSIZE + β_{11}DUREFORM + C

M6: INFORMATION LEAKAGE = α + β_1LNBV + β_2DERATIO + β_3SPER +β_4LNTINTPER +β_5LNTPER + β_6INDPER +β_7LNBSIZE +β_8ROLESE P+ β_9DUNC +β_{10}LNSSIZE + β_{11}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3	M4	M5	M6
Firm size	-0.001	-0.001	-0.002	-0.0004	-0.001	-0.002
	(-0.144)	(-0.337)	(-0.646)	(-0.114)	(-0.315)	(-0.622)
Ownership concentration	0.015	0.011	0.002			
	(0.507)	(0.382)	(0.070)			
State ownership				0.008	0.006	-0.001
				(0.460)	(0.338)	(-0.046)
institutional ownership	-0.004	-0.004	-0.005	-0.004	-0.004	-0.005
	(-1.487)	(-1.591)	(-1.932)**	(-1.426)	(-1.544)	(-1.927)**
tradable shares	0.032	0.029	0.020	0.030	0.028	0.019
	(2.191)**	(2.001)**	(1.364)	(2.303)	(2.123)**	(1.461)
Size of BOD	0.003	0.002	0.002	0.001	0.001	0.002
	(0.137)	(0.116)	(0.122)	(0.062)	(0.059)	(0.116)
Independence of BOD	0.029	0.024	0.009	0.030	0.025	0.009
	(0.363)	(0.299)	(0.112)	(0.375)	(0.308)	(0.109)
Leadership of BOD	-0.012	-0.011	-0.011	-0.012	-0.011	-0.011
	(-0.963)	(-0.876)	(-0.828)	(-0.969)	(-0.879)	(-0.819)
Audit committee	-0.061			-0.061		
	(-7.158)***			(-7.154)***		
Compensation committee		-0.049			-0.049	
		(-5.837)***			(-5.833)***	
Nomination committee			-0.007			-0.007
			(-0.881)			(-0.876)
Size of BOS	0.006	0.007	0.006	0.006	0.006	0.006
	(0.515)	(0.550)	(0.469)	(0.442)	(0.495)	(0.471)
Market reform	-0.086	-0.080	-0.063	-0.086	-0.080	-0.063
	(-9.249)***	(-8.657)***	(-7.068)***	(-9.259)***	(-8.666)***	(-7.075)
C	0.1029	0.106	0.093	0.107443	0.109	0.092
	(1.450)	(1.484)	(1.301)	(1.485)	(1.501)	(1.261)
R²	0.03	0.02	0.02	0.03	0.02	0.02
Adj. R²	0.02	0.02	0.01	0.02	0.02	0.01

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 12 corporate governance and information leakage - CARs (M) in state owned listed companies

M1: INFORMATION LEAKAGE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M2: INFORMATION LEAKAGE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M3: INFORMATION LEAKAGE = α + β₁LNBV + β₂ DERATIO + β₃ 1STPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M4: INFORMATION LEAKAGE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUAC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M5: INFORMATION LEAKAGE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUCC +β₁₀LNSSIZE + β₁₁DUREFORM + C

M6: INFORMATION LEAKAGE = α + β₁LNBV + β₂DERATIO + β₃SPER +β₄LNTINTPER +β₅LNTPER + β₆INDPER +β₇LNBSIZE +β₈ROLESE P+ β₉DUNC +β₁₀LNSSIZE + β₁₁DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)

	M1	M2	M3	M4	M5	M6
Firm size	-0.004	-0.005	-0.006	-0.006	-0.007	-0.008
	(-0.432)	(-0.563)	(-0.706)	(-0.667)	(-0.804)	(-0.944)
Ownership concentration	-0.130	-0.134	-0.138			
	(-1.901)*	(-1.961)***	(-2.011)**			
State ownership				-0.096	-0.101	-0.109
				(-1.249)	(-1.319)	(-1.420)
institutional ownership	-0.003	-0.003	-0.003	-0.003	-0.003	-0.004
	(-0.444)	(-0.477)	(-0.548)	(-0.542)	(-0.580)	(-0.654)
tradable shares	-0.010	-0.013	-0.018	-0.005	-0.009	-0.015
	(-0.309)	(-0.403)	(-0.550)	(-0.136)	(-0.238)	(-0.413)
Size of BOD	-0.030	-0.030	-0.029	-0.023	-0.022	-0.021
	(-0.670)	(-0.663)	(-0.644)	(-0.507)	(-0.497)	(-0.477)
Independence of BOD	-0.112	-0.115	-0.125	-0.111	-0.115	-0.125
	(-0.602)	(-0.622)	(-0.672)	(-0.601)	(-0.622)	(-0.674)
Leadership of BOD	-0.022	-0.022	-0.021	-0.023	-0.022	-0.021
	(-0.698)	(-0.679)	(-0.664)	(-0.713)	(-0.692)	(-0.672)
Audit committee	-0.050			-0.049		
	(-2.599)**			(-2.579)**		
Compensation committee		-0.036			-0.035	
		(-1.928)**			(-1.887)*	
Nomination committee			-0.012			-0.011
			(-0.667)			(-0.604)
Size of BOS	0.010	0.010	0.010	0.013	0.014	0.013
	(0.357)	(0.369)	(0.355)	(0.490)	(0.506)	(0.497)
Market reform	-0.118	-0.112	-0.102	-0.120	-0.113	-0.103
	(-5.711)***	(-5.468)***	(-5.133)***	(-5.766)***	(-5.520)***	(-5.190)***
C	0.308	0.314	0.310	0.307	0.313	0.310
	(1.932)**	(1.968)**	(1.945)**	(1.927)**	(1.962)**	(1.939)**
R²	0.01	0.01	0.01	0.01	0.01	0.01
Adj. R²	0.01	0.01	0.01	0.01	0.01	0.01

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 13 corporate governance and information leakage - CARs (C) in state owned listed companies

M1: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M2: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M3: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$ DERATIO + $β_3$ 1STPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M4: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUAC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M5: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUCC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

M6: INFORMATION LEAKAGE = α + $β_1$LNBV + $β_2$DERATIO + $β_3$SPER +$β_4$LNTINTPER +$β_5$LNTPER + $β_6$INDPER +$β_7$LNBSIZE +$β_8$ROLESE P+ $β_9$DUNC +$β_{10}$LNSSIZE + $β_{11}$DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3	M4	M5	M6
Firm size	0.002	0.001	-0.001	0.003	0.001	-0.001
	(0.538)	(0.275)	(-0.150)	(0.581)	(0.303)	(-0.110)
Ownership concentration	0.009	0.004	-0.002			
	(0.250)	(0.120)	(-0.042)			
State ownership				0.006	0.001	-0.013
				(0.148)	(0.025)	(-0.316)
institutional ownership	-0.006	-0.006	-0.007	-0.006	-0.006	-0.007
	(-1.975)**	(-2.026)**	(-2.237)**	(-1.963)**	(-2.022)**	(-2.247)
tradable shares	0.031	0.028	0.019	0.031	0.027	0.016
	(1.782)	(1.616)	(1.102)	(1.573)	(1.408)	(0.799)
Size of BOD	-0.016	-0.016	-0.014	-0.017	-0.016	-0.015
	(-0.691)	(-0.680)	(-0.608)	(-0.719)	(-0.699)	(-0.626)
Independence of BOD	0.061	0.059	0.040	0.061	0.059	0.040
	(0.625)	(0.600)	(0.404)	(0.625)	(0.600)	(0.404)
Leadership of BOD	-0.008	-0.008	-0.007	-0.008	-0.008	-0.006
	(-0.502)	(-0.464)	(-0.393)	(-0.498)	(-0.459)	(-0.372)
Audit committee	-0.066			-0.066		
	(-6.659)			(-6.645)***		
Compensation committee		-0.055			-0.055	
		(-5.627)***			(-5.614)***	
Nomination committee			-0.010			-0.010
			(-1.008)			(-0.991)
Size of BOS	0.013	0.013	0.013	0.013	0.013	0.013
	(0.924)	(0.951)	(0.887)	(0.908)	(0.945)	(0.898)
Market reform	-0.076	-0.070	-0.053	-0.076	-0.070	-0.053
	(-7.023)***	(-6.551)***	(-5.043)***	(-7.004)***	(-6.538)***	(-5.052)***
C	0.070	0.079	0.071	0.069	0.079	0.071
	(0.820)	(0.926)	(0.831)	(0.818)	(0.925)	(0.829)
R^2	0.03	0.02	0.01	0.03	0.02	0.01
Adj. R^2	0.02	0.02	0.01	0.02	0.02	0.01

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is 1% significance level.

Appendix 14 corporate governance and information leakage - CARs (M) in private listed companies

M1: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUAC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M2: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUCC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M3: INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUNC + β_{11}LNSSIZE + β_{12}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(M)			
	M1	M2	M3
Firm size	0.011	0.011	0.011
	(1.510)	(1.543)	(1.545)
Ownership concentration	-0.058	-0.058	-0.068
	(-0.920)	(-0.920)	(-1.072)
State ownership	-0.043	-0.043	-0.054
	(-0.542)	(-0.540)	(-0.688)
institutional ownership	0.012	0.011	0.011
	(2.344)**	(2.241)**	(2.084)**
tradable shares	-0.057	-0.061	-0.069
	(-2.000)**	(-2.104)**	(-2.411)**
Size of BOD	-0.052	-0.054	-0.054
	(-1.366)	(-1.408)	(-1.416)
Independence of BOD	-0.177	-0.186	-0.192
	(-1.165)	(-1.221)	(-1.263)
Leadership of BOD	-0.014	-0.012	-0.012
	(-0.671)	(-0.569)	(-0.568)
Audit committee	-0.067		
	(-3.910)***		
Compensation committee		-0.052	
		(-3.094)***	
Nomination committee			-0.033
			(-2.049)**
Size of BOS	0.033	0.034	0.035
	(1.157)	(1.202)	(1.229)
Market reform	-0.148	-0.140	-0.128
	(-7.780)***	(-7.432)***	(-7.059)***
C	0.118	0.104	0.083
	(0.794)	(0.701)	(0.554)
R^2	0.05	0.05	0.04
Adj. R^2	0.04	0.04	0.04

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

Appendix 15 corporate governance and information leakage - CARs (C) in private listed companies

M1: PREANNOUNCEMETN INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUAC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M2: PREANNOUNCEMETN INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUCC + β_{11}LNSSIZE + β_{12}DUREFORM + C

M3: PREANNOUNCEMETN INFORMATION LEAKAGE = α + β_1LNBV + β_2 DERATIO + β_3 1STPER +β4SPER + β_5LNTINTPER + β_6 LNTPER +β_7LNBSIZE +β_8 INDPER + β_9 ROLESE P +β_{10}DUNC + β_{11}LNSSIZE + β_{12}DUREFORM + C

Where LNBV is log (total asset of company). DERATIO is the proxy of leverage (D/E ratio). LNTINTPER is log (proportion of institutional ownership of company). 1STPER is the proportion of shareholdings of the largest shareholder. LNTPER is log (proportion of tradable shares of company). DUAC is the dummy that there is audit committee in company =1, otherwise =0. DUCC is the dummy that if there is compensation committee in company =1, otherwise =0. DUNC is the dummy that if there is nomination committee in company =1, otherwise =0. LNBSIE is log (number of members of board of directors). ROLESEP is the dummy that if CEO separated from Chairman =1, otherwise=0. LNSSIE is log (number of members of supervisory board). INDPER is the proportion of independent directors of board. DUREFORM is the dummy that the data is pre-reform = 1, otherwise = 0.

Dependent variable: CARs(C)

	M1	M2	M3
Firm size	-0.003	-0.003	-0.003
	(-0.441)	(-0.407)	(-0.378)
Ownership concentration	0.016	0.015	0.004
	(0.276)	(0.252)	(0.062)
State ownership	0.067	0.066	0.057
	(0.898)	(0.882)	(0.758)
institutional ownership	-0.001	-0.001	-0.002
	(-0.121)	(-0.235)	(-0.476)
tradable shares	0.034	0.031	0.022
	(1.250)	(1.127)	(0.797)
Size of BOD	0.039	0.038	0.037
	(1.058)	(1.026)	(1.004)
Independence of BOD	-0.021	-0.028	-0.036
	(-0.144)	(-0.194)	(-0.249)
Leadership of BOD	-0.017	-0.016	-0.016
	(-0.847)	(-0.762)	(-0.750)
Audit committee	-0.052		
	(-3.223)		
Compensation committee		-0.037	
		(-2.346)***	
Nomination committee			-0.004
			(-0.256)
Size of BOS	-0.016	-0.015	-0.014
	(-0.583)	(-0.543)	(-0.534)
Market reform	-0.110	-0.102	-0.089
	(-6.136)	(-5.776)***	(-5.167)***
C	0.124	0.110	0.083
	(0.858)	(0.759)	(0.570)
R²	0.03	0.03	0.03
Adj. R²	0.03	0.02	0.02

Value of t-test is in the bracket. Where * is the 10% significance level, ** is the 5% significance level, and *** is the 1% significance level.

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