Board Structure Determinants and Efficiency, Evidence from the Implementation of Independent Director System in China

Abstract

This paper explores the empirical results of the implementation of an independent director system in China. We find that there are three incentives for Chinese listed firms to recruit independent directors on board. Although the fundamental object of introducing independent directors in China is to protect small shareholders from exploitation by dominant shareholders, satisfying the government is the main incentive for firms to recruit independent directors. Second, listed firms try to signal the market by recruiting independent directors on board. Third, there is no evidence that independent directors are monitoring the top management on behalf of the small shareholders, but firms recruit independent directors for their advisory requirements. It is found that large firms have a significantly larger board than small firms in both the pre-Guidelines and after-Guidelines time period. Moreover, firms Q increases in board size, board independence ratio and the proportion of scholars on board for large firms that need more advice compared with small firms.

JEL classification: G34; G38
Keywords: Corporate governance; Board structure; Firm performance; China;

1. Introduction

It is suggested that there are two functions of a board: advising and monitoring (Raheja, 2005; Adams & Ferreira, 2007). Outside directors are expected to be tough monitors as they have incentives to develop reputations as experts in decision making (Fama and Jenson, 1983). There is an increasing trend of outside director representation on boards in publicly traded companies. Between 1993 and December 2000, at least 18 countries witnessed publication of reports that advocated or mandated minimum members of outside directors on board (Dahya and McConnell, 2005). Gordon (2007) reports that there was a steady increase in the representation of independent directors on the board of US firms, from approximately 20 percent in 1950 to approximately 75 percent in 2005.

In August 16, 2001, the China Securities Regulatory Commission (CSRC) issued the 'Guidelines about establishing independent director system in listed companies' (hereafter referred to as 'Guidelines'). According to the Guidelines, by June 30th, 2002, at least two members of the board of directors in China's listed firms should be independent directors[1]; and by June 30th, 2003, at least one third of any board should be composed of independent directors. It is argued that compared with other countries, besides normal agency costs, the listed companies in China are also suffering from "political costs" (i.e., the costs associated with control of firms by politicians who have political goals that differ from economic efficiency) (Xu, Zhu and Lin, 2005), expropriation by controlling share holders (Bai et al, 2004), and weak protection for minority shareholders (Chen, 2001). The fundamental impetus behind the introduction of independent directors in China is to protect small shareholders from the exploitation by dominant shareholders (Clarke, 2006).

For Chinese independent director system, the reform was initiated by the government rather than listed firms. The government wish that the internal corporate governance of Chinese listed firms can be improved through the introduction of an independent director system, especially, it is expected by the government that independent director can work on half of the small shareholders on the board. However, there are serious concerns about the true effect of the independent director system in China - will the board be really more independent after the reform? Or firms just recruit independent directors as a window dressing?

[1] Independent directors of a listed company refer to directors who do not hold any post in the company, other than the position of director, and who maintain no relationship with the listed company and its major shareholder, that might prevent them from making objective independent judgments. (Guiding opinions about establishing independent director system in listed companies, Article 1.1)

In this study, we argue that there are three incentives when listed firms recruit independent directors in China. First, satisfying the government is the main incentive for firms to recruit independent directors. Second, recruiting independent directors provides listed firms a good opportunity to restructure the board, signal the market is another incentive when they appoint independent directors. Third, seeking advises is another incentive for firms to recruit independent directors in addition to satisfying the government and the signal effect.

Using a sample of 494 Chinese listed companies that began to recruit independent directors in 2002[2], this paper contributes to the existing literature by examining the performance of the introduction of independent directors in China. Basically, three important questions are answered:

1.) What are the determinants of board structure in China?

The determinants of board structure can be divided into three groups (Boone et al, 2007; and Guest, 2008): The ‘‘scale and complexity of operations hypotheses’’ argues that firms with diversified business segments, a long operating history, and complex operating structures prefer a larger board and more independent directors; The ‘‘monitor costs and private benefits hypotheses’’ argues that board size and board independence are positively related to ‘inside’ director’s private benefits and negatively related to the monitor costs of independent directors; The ‘‘CEO influence hypotheses’’ argues that CEOs, with a longer tenure, prefer a small and insider-controlled board, and firms with poor performance intend to appoint more independent directors.

For Chinese corporate governance, there are twin agency problems suggested by Stulz (2005). In order to go public, it is common for a Chinese State-owned enterprise to split its money-making business from the original company, in order to establish a Share Holding Company. Under this approach, the original company is divided into two parts: a Share Holding company and a parent company. After listing, the parent company is always the largest shareholder of the listed company. According to Wei and Geng (2008), the five largest shareholders of Chinese listed firms account for 56.46% of the total issued share in 2007, with the largest shareholding of 42.18%. Due to the highly concentrated ownership structure of Chinese listed firms, the controlling shareholder can use their power for their own benefit, which creates “the agency problem of corporate insider discretion” called by Stulz (2005). Moreover,

[2] There were 1088 firms listed on the Shanghai and Shenzhen stock exchanges in 2000, but only 92 firms appointed independent directors onto their boards. In 2001, there were 1160 firms listed on the Shanghai and Shenzhen stock exchanges and the number of firms having independent directors on their boards increased to 323. As the Guidelines define precisely the role of the independent director in China, our sample selected 494 firms that began to appoint independent directors in 2002.

most majority of the largest shareholders are State-owned enterprises in China, listed firms are controlled by the State directly (if the largest shareholder is a government bureaucrat) or indirectly (if the largest shareholder is a Sate-owned enterprise). Fan et al (2007) find that 27% of the CEOs in their sample of 790 newly partially privatized firms in China are former or current government bureaucrats. So, those who control the state can use their powers to improve their welfare, which creates what Stulz (2005) calls "the agency problem of state ruler discretion (p.1633)".

Under such a unique corporate governance structure, first, the controlling shareholders hold the ultimate power to nominate candidates for independent directors. We argue that the controlling shareholding will organize a small and insider-controlled board for their own interests, therefore, the ''monitor costs hypotheses'' will be irrelevant for Chinese listed firms. Second, the State rulers have incentives to tunnel from the listed firms, corporate insiders will company more with other investors to decrease expropriation by the State (Stulz, 2005), therefore, the ''private benefits hypotheses'' will also be irrelevant. Third, since the establishment of the People's Republic of China until 1978, almost all enterprises in China were wholly-state-owned. These enterprises were administratively governed. The top management of listed firms generally politically connected and they do not have a great deal of experience in operating in market economies (Chen et al, 2006). So, the advisory requirement is another incentive when listed firms construct the board. Fourth, the implementation of an independent director system in China provides listed firms with an opportunity to re-structure their board. Jensen (1993) argued that keeping the size of boards small can help improve a firm's performance, because large boards become less effective, due to coordination and process problems. If the original board size has been too large, the listed firms can downsize the board while recruiting independent directors to signal positively to the market.

2). Will the independent directors monitor the top management?

It is expected by the government that independent directors can work as monitors to protect the interests of small shareholders. Independent directors are generally considered to be tough monitors because they have an incentive to develop their reputations in order to carry out their tasks and they do not collude with managers (Fama and Jensen, 1983). On the contrary, inside directors' careers are more dependent on the CEOs and as a result they are motivated to side with the CEOs, rather than to monitor the CEOs (Adams & Ferreira, 2007).

It is stated in the Guidelines that major related party transactions[3] should be approved by independent directors before being submitted to a board of directors for discussion; and before an independent director makes his or her judgment, an intermediary agency could be employed to produce an independent financial advisory report, which would serve as the basis for his or her judgment[4]. Moreover, independent directors could express their independent opinion on nominations, appointments or replacement of directors, as well as appointments or dismissals of senior managers. They could also express their independent opinion on events they consider to be detrimental to the interests of the minority shareholders. So, it is expected by the government that independent director can play a monitor role to the top management.

However, due to the highly concentrated ownership structure of Chinese listed firms discussed previously, we expect that the controlling shareholder will not select independent directors who have incentives to monitor them. Moreover, the managerial labour market is still underdeveloped in China up to now; there is not an efficient system to stimulate the independent directors working on behalf of small shareholders in China.

3). Can independent directors provide beneficial advises to CEOs?

It is expected by the government that independent director can be advisors to CEOs in China. Chinese listed firms, in particular, need advice because traditionally they were administratively governed, large in size, and the top executives were always not experts in management skills. Besides meeting the requirements of independence, independent directors in China are required to have basic knowledge concerning the operation of listed companies and to be familiar with the relevant laws and regulations. In addition, they need to have more than five years' work experience in law, economics or other fields required by his or her performance, relating to the duties of an independent director.[5] Moreover, it is stated in the Guidelines that independent directors should have enough time and energy to perform their duties effectively.

Although independent director may not monitor the top management, they may endeavour to perform their duties as advisors, for the reason of their own prestige. It is reported that about 40% of independent directors are university scholars and researchers in China (Yue, 2003; Tan el al, 2007). This result is very different with other countries. Scholars have already been recognised as experts in a certain area basing on their academic contributions. Their performance as independent directors

[3] Related party transaction refers to transactions that the listed company intends to conduct with the related party and whose total value exceeds RMB three million or 5% of the company's net assets, audited recently.
[4] Guidelines about establishing independent director system in listed companies, article 5.1
[5] Guidelines about establishing independent director system in listed companies, Article 2.2, 2.3 and 2.4.

will not affect their career development too much, even though they cannot provide evidence that they are effective monitors. It is expected that independent directors, especially scholars are not good candidates for monitors in China, but will they work as effective advisors?

The structure of the remainder of this paper is as follows: Section Two discusses the board structure determinates for Chinese listed firms. Section Three discusses whether independent directors will monitor the top management in China. Section Four discusses the advisory role of the board for Chinese listed firms**.** Section Five presents the data, empirical tests and the results and Section Six provides a conclusion.

2. The determinates of board structure for Chinese listed firms

2.1. Board size and the Guidelines

The implementation of an independent director system in China provides listed firms with an opportunity to re-structure their board. In order to fit with the Guidelines' instructions, first, firms have to make a decision on whether to meet the board independence requirements, by adding extra members onto the board, or by replacing the original board members.

Coles et al (2008) suggested that there are several reasons for the upsizing of a board, when firms recruit outside directors, including removing a director purely for downsizing reasons could affect the firm's reputation; the CEO can face a personal cost when firing a board member with whom he/she has developed a professional and personal relationship; and legal costs may be incurred as a result of firing directors before their term is complete. In December 1992, the Cadbury committee issued 'The Code of Best Practice', which recommended that UK publicly traded companies include at least three non-executive (i.e., outside) directors on their boards (Dahya et al, 2002). The Sarbanes–Oxley regulations also require a majority of outside directors on the boards of USA firms (Linck et al, 2005). Studies find that in response to the Cadbury committee recommendations and the Sarbanes–Oxley regulations, firms increased board independence by adding outside directors, instead of removing inside directors (Dahya et al, 2002; Linck et al, 2005).

In relation to upsizing costs, firstly, government regulations have an impact on firms' corporate governance. It is stated in the Company Law of the People's Republic of China (revised in 2005) that share holding companies can have a maximum of

nineteen members on a board[6]. Secondly, the market and the investors have an impact on board size. It is argued that limiting the size of a board can improve a firm's performance (Jensen, 1993). Lipton and Lorsch (1992) also recommended limiting membership to seven or eight people on a board, because large boards become less effective, due to coordination and process problems. Therefore, a large board may signal inefficient corporate governance to the market. Moreover, there are dollar costs as a result of adding members to a board. Based on a survey of 500 Chinese listed firms, the independent directors' compensation averaged 31,900 yuan per year, with the highest compensation being 200,000 yuan and the lowest 5000 yuan[7]. So it is costly to add board members.

The Chinese independent director system was initiated by the government not the market and the changes in the directorship of listed firms will be mainly designed to meet the government's requirements. We expect that in China, firms implement board independence by adding extra members, instead of removing inside directors. However, for firms that have already having a large board, they may downsize the board size to avoid the negative signal effect.

2.2. The board structure determinates for Chinese listed firms

We argue that some China specific features and firm size are the main board structure determinants in China.

2.2.1. China specific determinants

For determinants of board structure in China, two features have been identified that are different from most other countries. Firstly, as discussed previously, in order to go public, it is common for a Chinese State-owned enterprise to split its money-making business from the original company. The valuable assets go to the Share holding company to go public, whilst the money-losing assets are left with the parent company. After listing, the parent company is always the largest shareholder of the listed company. Cheung et al (2006) suggest that controlling shareholders can expropriate wealth from minority shareholders in many ways and the higher the proportion of shares held by the largest shareholder, the easier it is for them to do so. Deng et al (2006) found that, in China, large shareholders engage in a variety of expropriating activities, including asset sales, transfer-pricing of goods and services, and extracting trade credits. We expect that the largest shareholding is negatively related to board

[6] The Company Law of the People's Republic of China (revised in 2005), Article 109: A joint stock limited company shall set up a board of directors, which shall comprise 5-19 persons.
[7] Yue, Qingtang. (2003). An Empirical Study of the Age and Occupational Composition of the Independent Directors in 500 Listed Companies, ECON. WORLD, No. 2, 2003, p. 86-88.

size and the number of impendent directors on that board, because they have a strong incentive to control the board and their large shareholding makes this possible.

Secondly, in China, companies always carry out internal restructuring before listing to make themselves competitive to get the limited quota[8] and to be attractive to investors. For some SOEs, the restructuring is aimed at establishing Strategic Alliances with other companies that list together. For some median size companies, their individual capacities might not be good enough to go public; they choose to combine with other similar companies to meet the listing requirements. For instance, according to the Share Listing Rules of Shanghai Stock Exchange, companies applying for the listing of shares in Shanghai Stock Exchange must meet several conditions including the company's total share capital must not be less than RMB 50 million, as well as the company must have been in business for more than 3 years and have main profits over the last three consecutive years. It is expected that firms going public with more than one sponsor will have a larger board, because there might have a couple of directors from each sponsor.

2.2.2. Firm size

Coles et al (2008) indicated that complex firms need more advice and firms can be complex along different dimensions. Large enterprises consistently hold an important position in China's industry (Nolan, 2001). Vice Premier Wu Bangguo, said that 'Our nation's position in the international economic order will be to a large extent determined by the position of our nation's large enterprises and groups' (Renmen daily, August 1998). By 2004, there were 2,692 officially recognised large enterprise groups, they accounted for approximately 21% of China's exports, employed 26 million people and held assets of $2,000 billion (State Statistical Bureau, 2004). Lehn, Patro, and Zhao (2005) argue that large firms have more demand for advice than small firms, including information about product markets, foreign markets, mergers and acquisitions, technology, and labour relations. There are particularly lots of challenges for China's large firms including how to compete in the marketplace, upgrading the managerial skills of their managers, upgrading the technical level of their employees, and understanding the game rules of international markets (Nolan and Zhang 2003).

[8] Before 2001, the China Securities Regulatory Committee (CSRC) exercises a strict quota on the number of public offerings to restrict the supply of IPO shares. An annual quota is determined by CSRC, and then the quota is allocated among the provinces according to criteria that support regional development goals. The provincial governments entitle to decide which firms can go public ultimately (Su and Fleisher, 1999). An authorization system took in place of the quota system in 2001. Under the new system, provincial governments do not entitle to decide which firms can go public. In stead, underwriters can recommend the firms satisfying the listing standards, but the process still has to be approved by the CSRC (Megginson and Tian, 2007).

Using a unique sample of 81 publicly traded U.S. firms that survived over the period of 1935 through 2000, Lehn, Patro, and Zhao (2005) find that more than 60% of the variation in board size is explained by proxies for firm size. Booth and Deli (1999) argued that large firms are likely to have more external contracting relationships and therefore a larger board and more outside directors. Fich (2005) suggested that large firms are more likely to recruit outside executives, in order to establish bonds with other companies. Baker and Gompers (2003), Lehn et al (2005), Hillier and McColgan (2006), Boone et al (2007), Linck et al (2008), Coles et al (2008), and Guest (2008) all showed that the size of the firm is significantly and positively related to the size of the board and the proportion of outside directors on the board. We expect that large firms will have a large board and more independent directors on board in China.

3. Will independent directors monitor the top management in China?

As discussed, a key agency problem within China's corporate governance is the highly concentrated ownership structure, which in turn leads to the insider control of corporate affairs (Lin, 2004). After listing, the parent company is always the largest shareholder of the listed company. It is suggested that firms controlled by a corporate group engage in more related party transactions, which are suggested to be the real means of expropriation in China (Aharony, et al, 2005). Moreover, shareholder's general meetings are controlled by controlling shareholders, which are normally parent companies of listed firms, and as a result minority shareholders have no power relating to corporate decision-making. Kato (2006) showed that CEOs in 41% of China's listed firms simultaneously held executive positions in the controlling shareholder companies, during the period, 1998 to 2002.

In relation to an independent directors' nomination, it is stated that a board of directors, a supervisory board, or shareholders, who independently or jointly hold more than 1% of the shares issued by the listed company, can nominate independent directors and a vote will take place at the shareholders' meeting (the Guidelines, Article 4.1). Due to the highly concentrated ownership structure, the controlling shareholders have the ultimate right to nominate independent directors. It is reasonable that the controlling shareholders are less likely to select independent directors, who will be tough monitors on themselves (Clarke, 2006). Based on a survey of 69 independent directors of Chinese listed firms[9], 39% of independent directors said they were just working as consultants in the firms, and only 21% of them said that they were representing on behalf of the small shareholders.

Secondly, the managerial labour market is still underdeveloped in China up to now. Ferris et al (2003) suggest that current and former corporate executives are the

[9] http://business.sohu.com/20050306/n226294107.shtml

largest source of outside directors. However, the top management of Chinese listed firms generally comes from the original SOEs and they do not have a great deal of experience in operating in market economies (Chen et al, 2006). Although there are more than one thousand of companies listed in the Shanghai and Shenzhen stock exchanges, there is a lack of candidates for qualified independent directors in China. Studies show that scholars are the most popular source of independent directors in China. Yue (2003) [10] reported that 45% of independent directors in China are university professors or researchers from institutes. Tan el al (2007) also presented the fact that about 40% of independent directors are university scholars and researchers in China. Clark (2006) pointed out that the high proportion of scholars on boards suggests that firms recruit independent directors onto boards to satisfy the CSRC[11], and for the prestige of their value.

Therefore, we argue that independent directors will not monitor CEOs in China although the fundamental impetus behind the introduction of independent directors in China is to protect small shareholders from exploitation by dominant shareholders (Clarke, 2006), We test the relationship between the proportion of independent directors on board and related party transactions between listed companies and their controlling shareholders to explore whether independent directors can reduce related party transactions. It is expected that the proportion of independent directors on board is irrelevant to related party transactions between listed companies and their controlling shareholders.

4. The advisory role of the board in Chinese listed firms

4.1. The advisory needs of Chinese listed firms

There could be two reasons that firms keep a large board even through a large board may signal negatively to the market and it costs to add board members. First, the firm need more directors on board for seeking advice. Secondly, it could be the negotiation result among the large shareholders.

China's listed firms have particularly large advisory requirements. Firstly, as discussed Chinese enterprises were administratively governed since the establishment of the People's Republic of China until 1978. With the establishment of the Shanghai Stock Exchange in December 1990 and the Shenzhen Stock Exchange in July 1991, more and more SOEs were transformed into publicly listed companies. In 1992, the Chinese Security Regulatory Commission (CSRC) was established, in order to

[10] Yue, Qingtang. (2003). An Empirical Study of the Age and Occupational Composition of the Independent Directors in 500 Listed Companies, ECON. WORLD, No. 2, 2003, p. 86-88.
[11] The China Securities Regulatory Commission

strengthen supervision relating to Stock Exchange markets and listed companies. Although 'going public' opened a new chapter for China's corporate governance development, the effectiveness of the mechanisms depends on the long-term operation.

Secondly, the top management of listed firms are generally politically connected and they do not have a great deal of experience in operating in market economies (Chen et al, 2006). Chinese firms prefer politically connected CEOs to professional executives due to the importance of "Guanxi" or political and commercial connections in China. Fan et al (2007) find that 27% of the CEOs in their sample of 790 newly partially privatized firms in China are former or current government bureaucrats. Xu and Zhou (2008) report that among their sample firms (137 companies that are registered in Shanghai), 64% of firms have at least a board member with career experience in Shanghai government. Hu and Leung (2009) indicate that there are evidences that the government appoints a politician to replace the CEO in some Chinese SOEs when these enterprises encounter "troubles" in financial performance. Literature shows that Chinese politically connected firms take advantage of borrowing on preferential terms from state-owned banks or to receive government sponsors when they are in distress (Bai et al, 2005). Li et al (2008) find that the Party membership of private Chinese firms has a positive effect on the performance; moreover, the Party membership helps private firms to obtain loans from banks or other state institutions.

However, politically connected CEOs are suggested to be a lack of management skills and not expertise in management (Chen et al, 2006) on the one hand, and pursue political objectives other than profit maximization on the other (Shleifer and Vishny 1997). Fan et al (2007) find that Chinese firms with politically connected CEOs underperform those without politically connected CEOs by almost 18% based on three-year post-IPO stock returns and have poorer three-year post-IPO earnings growth, sales growth, and change in returns on sales.

Thirdly, as discussed, large enterprises consistently hold an important position in China's industry (Nolan, 2001). Lehn, Patro, and Zhao (2005) argue that large firms have more demand for advice than small firms, including information about product markets, foreign markets, mergers and acquisitions, technology, and labour relations. There are particularly lots of challenges for China's large firms including how to compete in the marketplace, upgrading the managerial skills of their managers, upgrading the technical level of their employees, and understanding the game rules of international markets (Nolan and Zhang 2003).

4.2. Board structure and performance

4.2.1. Board size and performance

Jensen (1993) argued that keeping the size of boards small can help improve a firm's performance, because large boards become less effective, due to coordination and process problems. Several empirical studies confirm the negative effect of board size on firm performance. Using a sample of 452 large USA industrial corporations, between 1984 and 1991, Yermach (1996) found a negative relationship between board size and firm value, in terms of Tobin's Q. Consistent with Yermack's findings, Eisenberg et al (1998), Conyon and Peck (1998), Mak and Yuanto (2001), Loderer and Peyer (2002), and Andres et al (2005) also reported a negative correlation between a firm's performance and board size in Finland, Malaysia, Singapore, Switzerland, Western Europe and North America, respectively.

However, Coles et al (2008) argued that complex firms stand to benefit from having more directors on their boards, because CEOs of complex firms have a greater need for advice and expertise. They found that the relationship between Tobin's Q and board size is driven by the differences between complex and simple firms. Although there is a negative relationship between board size and Tobin's Q for simple firms, in the case of complex firms that require more advice, Tobin's Q increases in board size. As discussed previously, in particular, Chinese listed firms need advice and large firms have more advisory requirements, compared with small firms.

To capture the advisory role of the board, we develop an interaction variable Board size × Firm Size. It is expected that Tobin's Q increases in the board size for large firms.

4.2.2. Board independence and performance

On the one hand, independent directors in China have little incentive to monitor their CEOs, and the controlling shareholder is less likely to select independent directors, who will be tough monitors on themselves. On the other hand, they will endeavour to perform their duties as advisors, for the reason of their own prestige. The monitoring role of the board has been studied extensively. However, the advisory role of the board has received far less attention (Coles et al, 2008). Raheja (2005) suggested that inside directors can provide beneficial firm-specific information, but they may need to be stimulated, in order to reveal their valuable information, due to their private benefits. Outside directors have no private benefit incentives on the one hand and they have incentives to build their prestige on the other.

Firms can directly use consulting firms to seek professional advises, however, the consulting industry in China is still immature when compared with the industry in other parts of the world, and more importantly, the industry is not widely recognized or understood in China. Basing on a statistic, there was about 130 thousands consulting firms in China in 2000, and among which, just 10-15% of the consulting firms providing management consultancy services[12]. For Chinese firms, they will always go to expertise for professional advises. SHANGHAI BELLING CORP.,LTD (600171) is a company focusing on electronic components and appliances. It recruited two independent directors, who are experts in the electronic area. The CEO of the company said that these two independent directors provided highly valuable advice on investment and development strategies[13]. We expect that Tobin's Q increases in the proportion of independent directors on the board for large firms.

To capture the advisory role of independent directors, we develop an interaction variable Board independence × Firm Size. We argue that large firms will take the advantage of recruiting more independent directors on the board for the advisory benefit.

4.3. Scholar as independent directors

Opposite to world wide experience, scholars are the largest resources of independent directors in China (Yue, 2003; Tan et al, 2007). This result is not surprising. Firstly, scholars are friendly monitors. Scholars have already been recognised as experts in a certain area basing on their academic contributions. Scholars have little incentives to monitor the board as their career development is less related to the performance as independent directors. Secondly, the candidate pool for independent directors has not been developed in China yet. There are not many qualified executives as candidates of independent directors. Thirdly, traditionally Chinese people respect authority. Scholar status itself is a kind of "authority". Firms send out positive signals of professional corporate governance to the market by recruiting famous scholars on board.

However, we argue that scholars will endeavour to perform their duties as advisors for two reasons. Firstly, scholars will provide expertise to CEOs for the reason of their own prestige. Fama and Jensen's (1983) argue that there is a reputational effect in the market for directors. Scholars realize that an outside director's success in the position will greatly boost their own prestige (Tan et al, 2007). Secondly, scholars will endeavour to provide advices for the possible social ties with CEOs. There is an argument that there are sorts of social ties between independent directors and CEOs

[12] http://finance.sina.com.cn/leadership/mzxyj/20060430/15202543181.shtml
[13] http://news.eastday.com/epublish/gb/paper148/20010511/class014800011/hwz381737.htm

in China. It is believed that most of the independent directors are friends or schoolfellow of CEOs, so recruiting scholars are just for window-dressing the board and northing less. However, Westphal (1999) suggests that friendship ties between a CEO and an outside director will increase a board's loyalty to the CEO. Although such social ties may diminish board monitoring activity, they may increase a CEO's advice-seeking behaviour, and also enhancing outside directors' perceived social obligation to provide assistance. Westphal (1999) finds that friendship ties are positively related to the level of advice and counsel.

To capture the advisory role of the scholars working as independent directors, we develop an interaction variables Scholar × Firm Size. We expect that Tobin's Q decreases in the proportion of scholars on board, but Tobin's Q increases in the proportion of scholars on board for large firms that need more advises**.**

5. Data, methodology and empirical results

The sample in this study includes 494 Chinese listed companies that began to recruit independent directors in 2002. Chinese listed firms seldom appointed independent (non-management) directors before the Guidelines[14]. As the Guidelines defined independent directorship precisely, those firms that began to recruit independent directors in 2002 were chosen, in order to measure the impact of the Guidelines. The board's composition was collected and also the largest shareholding data from the CSMAR China Listed Firm's Corporate Governance Research Database. The performance data are from the CSMAR China Stock Market Financial Database. We hand collect the background of the 1087 independent directors that the sample firms recruited in 2002.

5.1. The determinates of board structure

5.1.1. Descriptive statistics

To exam whether the difference on the board size between the pre-Guidelines and post-Guidelines period is statistically significant, we group the whole sample into three sub-samples, based on the average board size, from 1999 to 2001. Small boards refer to firms with a maximum of seven members on their board. Medium boards refer to firms with seven to eleven members on their board. Large boards refer to firms with more than eleven members on their board. The t test has been used to exam whether the difference is statistically significant. Small, medium and large board sub-samples

[14] 1088 firms were listed on the Shanghai and Shenzhen stock exchanges in 2000 and only 92 firms appointed independent directors to their boards. In 2001, there were 1160 firms listed in the Shanghai and Shenzhen stock exchanges, the number of firms having independent directors on board had increased to 323.

were also examined, in order to explore whether firms with different sizes have different results.

Insert Table 1 here

Table 1 reports the board structure of 494 firms, which began to recruit independent directors in 2002. The time period of the data is from 1999 to 2004. The whole of this period can be divided into two sub-periods: before the Guidelines (1999-2001) and after the Guidelines (2002 -2004). It is stated in 'The Company Law of the People's Republic of China' that the maximum tenure of any board is three years[15], and firms should re-select the board members within three years. Therefore, each sample firm had the opportunity to restructure its board during the post-Guidelines period.

The results show that the three-year average size of the whole sample increased from 9.27 to 9.81, after the Guidelines. The t test suggests that for the whole sample, the post-Guidelines board size is significantly larger than the pre-Guidelines board size. Panel A shows that for small board and medium board firms, the three-year average size of the samples increased by 1.94 and 0.53 respectively, whilst the size of large board firms decreased by 1.75, during the post-Guidelines period. The t test suggests that for the small board and medium board firms the post-Guidelines board size is significantly larger than the pre-Guidelines board size. However, for large board firms, the post-Guidelines board size is significantly smaller that the pre-Guidelines board size.

Moreover, subsample analysis was undertaken, based on firm size, the largest shareholding and restructure method. Panel B reports the results basing on the firm size. Firm size equals to the nature logarithm of total sales. Large firm refers to firms with the firm size larger than the sample mean, small firm refers to firms with the firm size less than the sample mean. Panel C reports the results basing on the largest shareholding. Largest shareholder's shareholding is the 3-year average proportion of shares hold by the largest share holder to the total shares from 1999-2001. Panel D reports the results basing on the restructure method. Restructure is a dummy which equals one if the firm has more than one sponsor while listing. The t test suggests that for all the subsamples, the post-Guidelines board size is significantly larger than the pre-Guidelines board size.

It is a concern that the three year average post-Guidelines data may bias the estimation. To avoid such bias, we compare the 3-year Pre-Guidelines board size with the board size of 2002, 2003, and 2004 respectively (not tabulated here). The t test

[15] The Company Law of the People's Republic of China (revised in 2005), Article 46: The term of the directors shall be prescribed by the articles of association, provided that each term may not exceed three (3) years.

results are robust (the post-Guidelines board size is statistically larger than the pre-Guidelines board size).

Overall, the results show that firms choose to upsize their boards to fit the government requirement even though it costs to keep a large board, except in the case where the board size (before the recruitment of independent directors) has already been too large. This result provides evidences that firms fit the board independence requirements for satisfying the government. However, for firms that already have a large board before recruiting independent directors, they choose to downsize the board in order to avoid the negative signal effect. As discussed previously that a large board may signal inefficient corporate governance to the market.

5.1.2. T test on board composition difference between subsamples

We use t test to exam board size difference between different subsample: large firms versus small firms, firms with a controlling shareholding versus firms without a controlling shareholding (it is proxied by whether the largest shareholding is larger than the sample mean), and firms have more than one sponsor while listing versus firms have just one sponsor while listing.

Insert Table 2 here

The results of Table 2 show that large firms have larger boards than small firms, during both the pre and post-guidelines time period. The mean difference is 0.84, 0.83, 0.78, 0.56, 0.62, and 0.67 from 1999 to 2004, respectively. These differences are all statistically significant in 1% level. Other results suggest that the largest shareholder controlled firms have smaller boards, during both the pre and post-guidelines time period, and the differences are normally statistically significant. Firms with one sponsor have smaller boards than firms with more than one sponsor. The differences are highly significant during both the pre and post-Guidelines time periods.

Moreover, we use the t test to exam the board independence difference between the three groups of subsamples from 2002 to 2004. We measure the board independence both by the number of independent directors recruited and by the proportion of independent directors to the total number of directors on board.

Insert Table 3 here

Table 3 reports the results of the t test regarding board independence. The results show that large firms recruit more independent directors on the board than small firms, the difference is statistically significant. However, there is no difference in term of the proportion of independent directors to the total number of directors on board.

Moreover, the differences on the number of independent directors on board and the independence ratio basing on the largest shareholding and restructure method are all insignificant.

Overall, the t test on board size difference between different subsamples suggests that first, firms fit the board independence requirements to satisfy the government, as firms chose to upsized the board to fit the independence requirements even through it costs to add members on board, except for the firms whose board size before the recruitment of independent directors has already been too large; moreover, there is no difference in term of the proportion of independent directors to the total number of directors on board[16]. Second, there are evidence that firms construct board to seek advises, as large firms have a significantly larger board than small firms in both the pre-Guidelines and after-Guidelines time period. Third, the largest shareholding and restructure method before listing are significant board size determinants.

5.1.3. The panel data analysis

As the t test does not control other factors that may affect board structure, we use panel data analysis to examine the determinants of board size and board independence. This panel data on board size covered 494 firms, from the period 1999 to 2004. The panel data on board independence covered 494 firms from the period 2002 to 2004, since the sample firms did not appoint independent directors before 2002.

The initial regression specification for board composition is as follows:

$$\text{Board size} = \alpha + \beta_1\text{Firm Size} + \beta_2\text{Diversification} + \beta_3\text{Leverage} + \beta_4\text{Shareholding} + \beta_5\text{Restructure} + \beta_6\text{ROA} + \beta_7\text{CEOT} + \text{Year dummies} + \text{Industry dummies} + \varepsilon$$

$$\text{Board independence} = \alpha + \beta_1\text{Firm Size} + \beta_2\text{Diversification} + \beta_3\text{Leverage} + \beta_4\text{Shareholding} + \beta_5\text{Restructure} + \beta_6\text{ROA} + \beta_7\text{CEOT} + \text{Year dummies} + \text{Industry dummies} + \varepsilon$$

Besides firm size and China specific determinants, we control other factors including firms' business segmentation, debt ratio and CEO's influence variables. During the transition from a command economy to a market-orientated economy, diversification strategy has become common for Chinese firms (Li and Wong, 2003). Studies suggest that firms with diversified business segments prefer a larger board and more

[16] According to the Guidelines, by June 30th, 2003, at least one third of any board should be composed of independent directors. The results show that the independence ratios of the sample firms are all around 33.3% in 2004, the difference is really minor.

outside directors. Boone et al (2007), Linck et al (2008), Coles et al (2008), and Guest (2008) all find a positive relationship between industrial diversification and the size of the board, in addition to board independence. We develop a dummy variable, Diversification, which equals one, if the firm has more than one business segmentation, otherwise it equals zero. Studies also show that debt ratio is significantly and positively related to the size of the board and the proportion of outside directors on the board (Linck et al, 2008; Coles et al, 2008; and Guest, 2008). We expect that Diversification dummy and debt ratio is positively related to board size and the number of independent directors on the board.

The CEO's influence is another determinant to a board structure. Firstly, as outside directors are tougher monitors, CEOs are more likely to choose small boards with fewer outside directors (Hermalin and Weisbach, 1998). Empirical studies confirm that CEO tenure is negatively related to board size and the proportion of outside directors on a board (Boone et al, 2007; and Coles et al, 2008). Secondly, Bhagat and Black (2002) suggested that a change in board independence is driven by poor firm performance, rather than by a firms' strategy. Boone et al (2007) and Coles et al (2008) found that firms with poor performance intend to appoint more independent directors. CEO Tenure and Pre-Guidelines performance has been used to capture the effect of CEO influence on the board structure determinants in this paper. Pre-Guidelines performance refers to return on assets (ROA), calculated as net income divided by total assets. CEO Tenure is the number of years that the CEO has been with the firm. It is hypothesised that CEO tenure and the Pre-Guidelines performance is negatively related to the size of a board and the number of independent directors on that board.

Following Coles et al (2008), our specifications are estimated using ordinary least squares (OLS) model. Guest et al (2008) suggested that "endogenous problems can occur if board structure and firm specific measures are jointly determined by unobservable factors (p.60)". In order to reduce endogenous problems, following Guest et al (2008), year and industry dummy variables were used to control for board structure trends. It is a concern that board structure is relatively persistent (Hermalin and Weisbach, 1988). Following Guest et al (2008), this serial correlation was controlled by estimating clustered robust standard errors, which are clustered in the firm level.

Insert Table 4 here

Table 4 reports summary statistics for the variables. It is shown that the maximum board size is nineteen, and the minimum board size is five. The maximum number of independent directors on a board is six, whilst the minimum number is one. The average independent ratio is 29.3%, with a maximum ratio of 50% and a minimum

ratio of 10%. The average largest shareholding is 44.8%, with a maximum holding of 89% and a minimum holding of 3.1%. About 26% of firms have more than one sponsor while listing. 53% of the firms have diversified their business segments. The largest CEO tenure is 15 years, and the smallest is one year.

Insert Table 5 here

Table 5 reports the empirical results regarding the determinants on board size and board independence. The dependent variable of Model 1 is the nature logarithm of number of directors on board. The dependent variable of Model 2 is the nature logarithm of the number of independent directors on board. The dependent variable of Model 3 is the proportion of independent directors to the total number of directors on board.

Consistent with the hypothesis, Model 1 presents a significant positive relationship between firm size and board size. This result suggest that large firms have the incentive to organize a large board to seek advises. Moreover, there is a significantly negative relationship between the largest shareholding and board size. In addition, firms have more than one sponsor while listing have a larger board than firms just have one sponsor. Guest (2008) suggested another concern: firm specific explanatory variables are determined by board structure, rather than vice versa. In particular, Yermack (1996) found that board size has negative impacts on ROA. Following Guest (2008), we use lagged values of ROA as an instrumental variable to do the 2SLS regressions again. The new results (not tabulated here) are very similar to the original estimates in Table 5.

Model 2 presents a positive relationship between firm size and the number of independent directors on board, and the coefficient on firm size is highly significant. This result can be interpreted by two reasons. First, large firms need more independent directors on board for advising purpose. Second, it could be led by the "one third" requirements. According to the Guidelines, by June 30th, 2003, at least one third of any board should be composed of independent directors. As large firms have a large board, they have to recruit more independent directors to fit the "one third" requirements. Moreover, a strong negative relationship is found between the largest shareholding and board independence, which suggests that the largest shareholders require an insider controlled board.

Model 3 presents that firm size is not statistically significant in term of the proportion of independent directors to the total number of directors on board. Opposite to our hypothesis, firms with better performance in term of ROA have a large board independence ratio, and firms with more than one sponsor have a significantly small independence ratio. Similarly, lagged values of ROA were used as an instrumental

variable to do the 2SLS regressions again. The new results (not tabulated here) shows that all the independent variables become insignificant except for year dummies. This result provides evidence that firms recruit independent directors to fit the government requirements, as there is no difference in term of board independence ratio regressed on different independent variables.

Overall, the results suggest that regarding Chinese firms' board size, three factors are significant. The largest shareholders have strong incentives to organize a small and an insider controlled board. Firm size as a proxy of advisory demand is also a significant determinant, as Chinese listed firms, especially large firms, have huge advisory needs. Moreover, the restructure method is also relevant; firms have more than one sponsor while listing have a larger board than firms just have one sponsor. However, in term of board independence ratio, all independent variables are not significant.

5.1.4. Robustness test

Literature shows that monitor costs and private benefits hypotheses are important board structure determinants, but the panel data analysis in this study does not include those variables. Moreover, besides firm size, industry diversification and leverage ratio, other studies have used firm age to measure firm complexity. It is a concern that the omitted variables may bias the results. We undertake cross sectional analysis, including firm age, Tobin's Q, R&D dummy, share return variance, and free cash flow as a robustness test. Tobin's Q equals to the total market value divided by the total assets. R&D refers to a dummy, if the firm has "TECHNOLOGY" in its name, as a proxy of high R&D firm. Share return variance refers to the stock return variance calculated as a standard deviation of monthly stock returns. Free cash flow is calculated as cash holdings divided by total assets. The results (not tabulated here) show that all those variables are not significant in relation to board size and board independence ratio.

5.2. Do independent directors monitor the top management?

Do independent directors have any impacts on firms' internal corporate governance? Particularly, do independent directors monitor top management in term of related party transactions, which are suggested to be the real means of expropriation in China (Aharony, et al, 2005)? We test the relationship between the proportion of independent directors on board and related party transactions between listed companies and their controlling shareholders to explore whether independent directors can reduce related party transactions. As discussed, the main agency problem in China is the dominance of the controlling shareholders, which leads to insider controlled board. The fundamental impetus behind the introduction of

independent directors in China is to protect small shareholders from exploitation by dominant shareholders (Clarke, 2006).

Expropriation ratio (Expropriation 1) refers to the related party transaction between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, as well as the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. There are seventeen types of the related party transaction[17] in the sample. We conduct a variable Expropriation 2 in this paper to do a robustness test Expropriation 2 refers to the related party transactions that are a priori likely to result in expropriation suggested by Cheung et al (2006) [18], including Commodity transaction; Asset Transaction; Fund transaction; Guarantee and pledge; Stock transaction; and Debt transaction, between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, as well as the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company.

5.2.1. The Wilcoxon z- test

We use the Wilcoxon z-test to exam whether the difference in term of expropriation between the pre and post-Guidelines periods is statistically significant, we also carry out a proportion test to see if the proportion of change is greater than 50%. The Pre-Guiding expropriation equals the 3-year average expropriation from 1999-2001. The Post-Guiding expropriation equals the 2-year average expropriation from 2003-2004.

Inset Table 6 here

Table 6 reports the results of the Wilcoxon z-test. The results show that the Post-expropriation is significantly larger than Pre-expropriation in term of expropriation1 and expropriation2. It suggests that independent directors did not reduce related party transactions between listed firms and their controlling shareholders in term of dollar value. Moreover, we compare the number of board meeting in 2001 and 2-year

[17] 01= Commodity transaction; 02= Asset Transaction; 03=Receiving or Rendering Services; 04= Agency, Commissioning; 05=Fund transaction; 06=Guarantee and pledge; 07=Lease; 08=Operating Trust (management side); 09= Donation; 10= Non-monetary transaction; 13= Stock transaction; 15= Debt transaction; 17= Cooperative project; 18= License agreement; 19= R&D achievements; 20= Key managers' remuneration; 21= Other events

[18] Cheung et al (2006)[18] classify the connected transactions into three broad categories: 1. transactions that are a priori likely to result in expropriation, which includes asset acquisitions, asset sales, equity sales, trading relationships, and cash payments to connected parties; 2. transactions that are likely to benefit the listed firm, which includes cash receipts and subsidiary relationships; and 3. transactions that may have been driven by strategic rationales , which includes takeover offers and joint ventures, joint venture stake acquisitions and sales.

average number of 2003-2004. It is found that firms had more board meetings after the recruitment of independent directors (the meeting number increased from 6.0061 to 7.5051, and the difference is statistically significant). Vafeas (1999) indicates that board activity, measured by the board meeting frequency, is an important dimension of board operations. Particularly, it is found that board meeting frequency is significantly and negatively related to firms' market performance because a larger meeting frequency signals inefficient corporate governance.

5.2.2. The random-effects GLS regression

We use the random-effects GLS regression to test whether independent directors are playing the role of monitoring related party transactions. The panel data covers 494 firms, from the period 2001 to 2004. We run a Hausman test comparing fixed with random effects model. The hypothesis that the individual effects are uncorrelated with the other regressors in the model (Hausman 1978) was not rejected, which suggest that a random effect model is preferred.

We hypothesize that the presence of independent directors did not reduce the expropriation by the controlling shareholders, because they have little incentives to monitor the CEOs. Independent variables include board structure variables and other control variables.

The regression specification for Expropriation is as follows:

$$\text{Expropriation} = \alpha + \beta_1\text{Board Independence} + \beta_2\text{Borad Size} + \beta_3\text{Firm Size} + \beta_4\text{Leverage} + \beta_5\text{Supervision} + \beta_6\text{Esupervision} + \beta_7\text{Bmeeting} + \beta_8\text{Smeeting} + \beta_9\text{Shareholding} + \beta_{10}\text{Bureaucrat} + \varepsilon$$

Board size stands for the nature logarithm of the directors on board. Board independence stands for the proportion of independent directors on board. Firm size stands for the natural logarithm of total sales of the firms. Leverage equals total liabilities to total assets. Supervisor stands for the nature logarithm of the number of supervisors on the supervisory board. Esupervisor stands for the proportion of employee supervisors to the total number of supervisors. Bmeeting refers to the number of the board director meetings per year. Smeeting refers to the number of the supervisor meetings per year. Regulated industry refers to a dummy which equals one if the firm belongs to electric power, steam and hot water production and supply, petroleum refining and coking, telecommunication, oil and gas extraction, railroad transportation, and highway transportation. Shareholding stands for the proportion of shares hold by the largest shareholder. Bureaucrat refers to a dummy if the largest shareholder is a government bureaucrat.

Insert Table 7 here

Table 7 reports the empirical results regarding the Random-effects GLS regression analysis. We find an insignificant positive relationship between the proportion of independent directors on the board and expropriation, which suggesting independent directors did not reduce related party transactions. A significantly positive relationship is found between board size and expropriation. This result is reasonable because large companies always have more agency problems.

In addition, the number of supervisors is significantly and negatively related to expropriations. It indicates that firms with larger supervisory boards engage in less related party transactions. In China, operating under the country's Company Law, companies have a two-tier board including the directory board and the supervisory board, which has the responsibility to monitor the firm's accounting system and the financial statements (Firth et al, 2007). The supervisory board usually has employees and shareholder representatives. It is argued that the supervisory board is inefficient in term of overseeing the board of directors and managers (Lin, 2004) because supervisors are always not experts. However, Firth et al (2007) find that firms with larger supervisory boards have better earnings and higher quality financial statements based on the auditor's opinion in China.

Moreover, it shows that the proportion of shares hold by the largest shareholder has a significant positive relationship with expropriation. As Cheung et al (2006) suggest that controlling shareholders can expropriate wealth from minority shareholders in many ways, the higher proportion of shares hold by the largest share holder, the easier for them to do so. However, we find that the Bureaucrat dummy is significantly and negatively related to expropriations. This result indicates that government bureaucrats have a helping hand if there is a serious tunnel by the parent company of a listed firm. We find that firms operating in regulated industries suffer more from tunnelling. This result is consistent with Gao and Klin (2007). Moreover, it is found that large firms engage in more related party transactions, while firms with large debt ratio suffer less.

5.3. Board structure and firm performance

5.3.1. Panel data analysis

In this study, panel data analysis was used to examine the effect of board structure on firm performance. This panel data covered 494 firms for the period 1999 to 2004. Dependent variable is Tobin's Q of the firms from 1999 to 2004. Following Coles et al (2008), we approximate Tobin's Q as book assets minus book equity plus market

value of equity all divided by book assets. We use the random-effects GLS regression to test the relationship between board composition and firm performance. We run a Hausman test comparing fixed with random effects. The hypothesis that the individual effects are uncorrelated with the other regressors in the model (Hausman 1978) was not rejected, which suggest that a random effect model is preferred.

In particular two interactional variables were constructed - Board size × Firm Size and Board independence × Firm Size, in order to capture the advisory role of the board. Board size refers to the number of directors on a board. Board independence refers to the proportion of independent directors on a board. Firm Size equals to the nature logarithm of total sales.

The regression specification for Expropriation is as follows:

$$\text{Tobin's Q} = \alpha + \beta_1\text{Board Independence} + \beta_2\text{Borad Size} + \beta_3\text{Firm Size} + \beta_4\text{Leverage} + \beta_5\text{Shareholding} + \beta_6\text{Location} + \beta_7\text{Regulated} + \beta_8\text{CEOT} + \beta_9\Delta\text{GDP} + \varepsilon$$

Insert Table 8 here

Table 8 reports the regression results of the panel data analysis. Model 1 shows that there is a negative relationship between board size and Tobin's Q, and a negative relationship between the proportion of independent directors on a board and the firm's performance. Sun and Tong (2003) argued that large SOEs have a larger market share and more market power, but they also encounter more redundancy and substantial agency problems, which are detrimental to a firm's performance. Their empirical results show that size has a negative impact on market book ratio, which suggests that the market is concerned about larger agency problems for larger SOEs. Following Sun and Tong (2003), the natural logarithm of total sales was used as a proxy for firm size. We found that firm size is significantly and negatively related to a firm's performance. Moreover, It is found that firms located in Beijing, Shanghai or Guangdong have significantly higher performance, than those located in other cities. CEO tenure is significantly and negatively related to Tobin's Q. This result is opposite to our expectation as long tenured CEOs should accumulate more firm- and job specific skills (Simsek, 2007).

It is expected that the largest shareholding is negatively related to a firm performance. Deng et al (2006) found that, in China, large shareholders engage in a variety of expropriating activities, and these related party transactions significantly reduce a firm's performance. However, our results show that the largest shareholding is significantly and positively related to Tobin's Q, which suggest that the market identify the largest shareholding as a positive factor rather than a negative one.

Model 2 reports the results, when the interactional variable Board size × Firm Size is involved. The coefficient on board size becomes significantly negative (β = -16.818, p= 0.000). The coefficient on Firm Size is still negative (β = -2.930, p= 0.000). However, the coefficient on Board size × Firm Size becomes significantly positive (β =1.882, p= 0.001).

Model 3 presents the results, when the interactional variables Board size × Firm Size and Board independence × Firm Size are all involved. The coefficients on board size and board independence both become significantly negative. The coefficient on Firm Size is negative (β = -2.629, p= 0.000). However, the coefficients on Board size × Firm Size and Board independence × Firm Size are both significantly positive. This result confirms the study's hypothesis that Tobin's Q increases in board size and board independence, for large firms that need more advice.

5.3.2. Robustness test

We undertake a robustness test using Scholar, which is the proportion of scholar on the board, instead of Board independence. We hand collect the background of the 1087 independent directors that the sample firms recruited. Consistent with the other studies, it is show that scholars in Universities or research institutions are the largest resources of independent directors in China. 47.29% of independent directors of our sample are scholars. Table 9 reports the empirical results regarding to the OLS test on the proportion of scholars as independent directors on board and firm efficiency.

In order to capture the advisory benefit of scholars on board, we develop an interaction variable Scholar × Firm Size. We expect that Tobin's Q increases in the proportion of scholars on board for large firms, which need more advice.

Insert Table 9 here

Model 1 of Table 9 reports that the coefficients on Firm Size and Scholar are negative and highly significant. Model 2 of table 9 presents the results when the interactional variable Scholar × Firm Size is involved. The coefficient on Scholar is significantly negative (β = -17.535, p= 0.000). The coefficient on Firm Size is still significantly negative (β = -0.729, p= 0.000). However, the coefficient on Scholar × Firm Size becomes significantly positive (β = 1.909, p= 0.000). This result indicates that although scholars are negatively related to Tobin's Q, they add value to large firms which need more advice compared with small firms.

6. Conclusion

It is suggested that elected by shareholders, independent directors are supposed to monitor the managers, in view of shareholder's interests (Fama and Jensen, 1983). However, the key problem in China's corporate governance is the highly concentrated ownership structure, which in turn leads to insider control of corporate affairs (Lin, 2004). It has been identified by this study that there are three incentives for Chinese listed firms to recruit independent directors on board.

Although the fundamental object of introducing independent directors in China is to protect small shareholders from exploitation by dominant shareholders, satisfying the government is the main incentive for firms to recruit independent directors. First, it is found that Chinese listed firms implement the board independence requirement by adding some extra members onto a board, rather than replacing the original inside directors, except where the pre-Guiding board size has already been too large (larger than eleven). Second, there is no difference in term of board independence ratio. According to the Guidelines, by June 30th, 2003, at least one third of any board should be composed of independent directors. Our results show that the independence ratios of the sample firms are all around 33.3% in 2004, the difference is really minor, and no independent variable is significant in term of board independence ratio determinants. Third, independent directors do not reduce related party transactions between the listed firms and their controlling shareholders.

Second, listed firms try to signal positively to the market by recruiting independent directors on board. Firms that already have a large board before recruiting independent directors choose to downsize the board in order to avoid the negative signal effect, as a large board may signal inefficient corporate governance to the market. We found that 47.29% of independent directors of our sample are scholars. Traditionally Chinese people respect authority. Scholar status itself is a kind of "authority". Firms try to send out positive signals of professional corporate governance to the market by recruiting famous scholars on board.

Third, firms recruit independent directors for their advisory requirements. Large firms have a significantly larger board than small firms in both the pre-Guidelines and after-Guidelines time period. And nearly half of the independent directors on board are scholars. The empirical results on board structure and firm performance suggest that the coefficients on Board size × Firm Size, Board independence × Firm Size and Scholar × Firm Size are all significantly positive when regressed on Tobin's Q. This result suggests that firms Q increases in board size, board independence and the proportion of scholars on board for large firms that need more advice compared with small firms.

Overall, the empirical results suggest that in China, the true contribution of independent directors is to window dress the board and provides advice up to now; there is no evidence that they are monitoring the top management on behalf of the small shareholders. This disappointing result could be mainly due to two reasons. The highly concentrated ownership structure of Chinese listed firms leads to insider control of corporate affairs (Lin, 2004). A government initiated independent director system cannot resolve the problem of tunnelling by the largest shareholder in China. Moreover, the managerial labour market is still underdeveloped in China up to now. There is a lack of candidates for qualified independent directors, and there is no efficient system to stimulate independent directors to work on behalf of small shareholders.

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Table 1 Descriptive Statistics

This table reports the t test results on board structure of the 494 firms that began to recruit independent directors in 2002. Before Guidelines is the period from 1999 to 2001. After Guidelines is the period from 2002 to 2004. We group the whole sample into three subsamples basing on the average board size from 1999 to 2001. Small boards refer to firms with a maximum of seven members on their board. Medium boards refer to firms with seven to eleven members on their board. Large boards refer to firms with more than eleven members on their board. Panel B reports the information basing on firm size. Firm size equals to the nature logarithm of total sales. Large firm refers to firms with the firm size is larger than the sample mean, small firm refers to firms with the firm size less than the sample mean. Panel C is basing on the largest shareholding. Largest shareholder's shareholding is the 3-year average proportion of shares hold by the largest share holder to the total shares from 1999-2001. Panel D is basing on the restructure method. Restructure is a dummy which equals one if the firm has more than one sponsor while listing.

		Board size		Board size difference	T Test
		Mean		Mean	
	N	Before Guidelines	After Guidelines	After-Before	
Whole sample	494	9.27	9.81	0.54	-5.8784***
Panel A : Basing on board size					
Small board	130	6.59	8.52	1.94	-17.638***
Medium board	287	9.39	9.91	0.53	-5.597***
Large board	77	13.38	11.63	-1.75	6.113***
Panel B: Basing on firm size					
Large firm	248	9.68	10.12	0.44	-3.111***
Small firm	246	8.86	9.51	0.65	-5.476***
Panel c: Basing on the largest shareholding					
Up-mean subsample	240	9.05	9.64	0.59	-4.312***
Under-mean subsample	254	9.49	9.98	0.49	-3.990***
Panel D: Basing on restructure					
Restructured subsample	131	9.91	10.31	0.4	-2.043**
Un-restructured subsample	363	9.04	9.63	0.59	-5.750***

* Significant at the 0.10 level. ** Significant at the 0.05 level. *** Significant at the 0.01 level.

Table 2 t test on board size

This table presents the t test results on board size. Firm size equals to the nature logarithm of total sales. Large firm refers to firms with the firm size larger than the sample mean, small firm refers to firms with the firm size less than the sample mean. Panel B is basing on the largest shareholding. Largest shareholding is the 3-year average proportion of shares hold by the largest share holder to the total shares from 1999-2001. Panel C is basing on the restructure method. Restructure is a dummy which equals one if the firm has more than one sponsor while listing.

Panel A: Large firms Vs small firms

		Board size					
		1999	2000	2001	2002	2003	2004
Large firms	N	248	248	248	248	248	248
	Mean	9.86	9.69	9.48	10.22	10.13	10.01
Small firms	N	246	246	246	246	246	246
	Mean	9.02	8.87	8.70	9.67	9.51	9.34
Sector difference (large-small)	Mean difference	0.84	0.83	0.78	0.56	0.62	0.67
t test	t	-3.624***	-3.693***	-3.548***	-2.780***	-3.227***	-3.585***

Panel B: Largest shareholding

		Board size					
		1999	2000	2001	2002	2003	2004
Up mean sub sample	N	240	240	240	240	240	240
	Mean	9.15	9.07	8.92	9.75	9.67	9.51
Under mean sub sample	N	254	254	254	254	254	254
	Mean	9.71	9.48	9.26	10.13	9.97	9.83
Sector difference (Up - Under)	Mean difference	-0.56	-0.42	-0.35	-0.38	-0.3	-0.32
t test	t	2.392**	1.841*	1.560	1.892*	1.564	1.705*

Panel C: Restructure

		Board size					
		1999	2000	2001	2002	2003	2004
Restructure sample	N	131	131	131	131	131	131
	Mean	10.03	9.98	9.73	10.6	10.22	10.12
Un-restructure sub sample	N	363	363	363	363	363	363
	Mean	9.23	9.03	8.87	9.71	9.68	9.51
Sector difference (Up - Under)	Mean difference	0.8	0.95	0.87	0.88	0.54	0.61
t test	t	-2.854**	-3.534***	-3.477***	-3.938***	-2.499**	-2.863***

* Significant at the 0.10 level. ** Significant at the 0.05 level. *** Significant at the 0.01 level.

Table 3 t test on board independence

This table presents the t test results on board size. Independent director refers to the number of directors on the board. Independent ratio refers to the proportion of independent directors on board to the total number of directors. Firm size equals to the nature logarithm of total sales. Large firm refers to firms with the firm size larger than the sample mean, small firm refers to firms with the firm size less than the sample mean. Largest shareholding is the 3-year average proportion of shares hold by the largest share holder to the total shares from 1999-2001. Restructure is a dummy which equals one if the firm has more than one sponsor while listing.

Panel A: Large firms Vs small firms

		Independent director			Independent ratio (%)		
		2002	2003	2004	2002	2003	2004
Large firms	N	248	248	248	248	248	248
	Mean	2.27	3.26	3.38	23.12	32.83	33.89
Small firms	N	246	246	246	246	246	246
	Mean	2.13	3.07	3.13	22.93	32.34	33.81
Sector difference (large-small)	Mean difference	0.14	0.18	0.24	0.19	0.49	0.09
t test	t	-3.229***	-2.623***	-3.481***	-0.303	0.336	-0.315

Panel B: Largest shareholding

		Independent director			Independent ratio (%)		
		2002	2003	2004	2002	2003	2004
Up mean sub sample	N	240	240	240	240	240	240
	Mean	2.21	3.11	3.2	23.54	32.45	33.85
Under mean sub sample	N	254	254	254	254	254	254
	Mean	2.19	3.22	3.31	22.45	32.49	33.81
Sector difference (Up - Under)	Mean difference	0.02	-0.1	-0.11	1.09	-0.04	0.05
t test	t	-0.536	1.468	1.562	-2.038**	0.092	-0.109

Panel C: Restructure

		Independent director			Independent ratio (%)		
		2002	2003	2004	2002	2003	2004
Restructure sample	N	131	131	131	131	131	131
	Mean	2.2	3.24	3.36	21.63	31.93	33.32
Un-restructure sub sample	N	363	363	363	363	363	363
	Mean	2.2	3.14	3.22	23.47	32.66	34.01
Sector difference (Up - Under)	Mean difference	0	0.1	0.14	-1.84	-0.73	-0.69
t test	t	0.053	-1.1971	-1.614	3.021**	1.399	1.448

* Significant at the 0.10 level. ** Significant at the 0.05 level. *** Significant at the 0.01 level.

Table 4 Summary statistics

The sample includes 494 Chinese listed companies that began to recruit independent directors in 2002. Board size refers to the number of directors on the board. Board independence refers to the number of independent directors on the board. Independent ratio refers to the proportion of independent directors to the total number of directors on the board. Firm size equals to the nature logarithm of total sales. Diversification is a dummy equals one if the firm has more than one business segmentations. Leverage refers to the total liabilities to total assets. Largest shareholding is the proportion of shares hold by the largest share holder to the total number of shares. Restructure is a dummy which equals one if the firm has more than one sponsor while listing. ROA refers to return on assets calculated as net income divided by total assets. CEO Tenure is the number of years the CEO has been with the firm.

Panel A: Board size sample

	N	Mean	Std. Deviation	Mini	Maxi	Percentiles		
						25th	50th	75th
Board size	2936	9.549	2.376	5.000	19.000	8.000	9.000	11.000
Firm size	2936	8.768	0.503	6.758	10.810	8.437	8.775	9.090
Diversification	2936	0.530	0.499	0.000	1.000	0.000	1.000	1.000
Leverage	2936	0.462	0.220	0.011	4.342	0.328	0.462	0.586
Largest shareholding	2936	0.448	0.172	0.031	0.886	0.298	0.436	0.587
Restructure	2936	0.266	0.442	0.000	1.000	0.000	0.000	1.000
ROA	2936	0.024	0.084	-2.525	0.457	0.010	0.031	0.054
CEO tenure	2936	3.245	2.757	0.000	15.000	1.000	3.000	5.000

Panel B: Board independence sample

	N	Mean	Std. Deviation	Mini	Maxi	Percentiles		
						25th	50th	75th
Board independence	1471	2.874	0.849	1.000	6.000	2.000	3.000	3.000
Independent ratio	1471	0.293	0.072	0.100	0.500	0.222	0.333	0.333
Firm size	1471	8.858	0.516	6.854	10.810	8.515	8.879	9.188
Diversification	1471	0.532	0.499	0.000	1.000	0.000	1.000	1.000
Leverage	1471	0.496	0.244	0.011	4.342	0.362	0.502	0.618
Largest shareholding	1471	0.430	0.168	0.032	0.850	0.293	0.412	0.571
Restructure	1471	0.260	0.439	0.000	1.000	0.000	0.000	1.000
ROA	1471	0.014	0.097	-2.525	0.457	0.007	0.021	0.041
CEO tenure	1471	4.589	2.557	1.000	15.000	3.000	4.000	6.000

Table 5 Panel data analysis- determinates of board structure

This table reports the empirical results regarding the OLS regression analysis on determinants of board structure. Firm size equals to the nature logarithm of total sales. Diversification is a dummy which equals one if the firm has more than one business segmentation. Leverage refers to the proportion of total liabilities to total assets. Largest shareholding is the proportion of shares hold by the largest share holder to the total number of shares. Restructure is a dummy which equals one if the firm has more than one sponsor while listing. ROA refers to return on assets calculated as net income divided by total assets. CEO Tenure is the number of years the CEO has been with the firm.

	Model 1 Board size		Model 2 Board independence		Model 3 Independent Ratio	
	Coef.	p	Coef.	p	Coef.	p
Firm size	0.042	0.000	0.044	0.000	0.001	0.668
Diversification	0.010	0.227	-0.001	0.924	-0.002	0.674
Leverage	-0.008	0.583	-0.004	0.764	0.004	0.554
Largest shareholding	-0.065	0.002	-0.068	0.000	-0.003	0.810
Restructure	0.031	0.000	0.005	0.493	-0.010	0.017
ROA	-0.038	0.203	0.063	0.013	0.044	0.003
CEO tenure	-0.001	0.546	-0.002	0.097	0.000	0.773
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.0947		0.4166		0.4660	
No. of observations	2936		1471		1471	

Table 6 The Wilcoxon z- test: Independent director and corporate governance

This table presents the Wilcoxon z- test results of the sample. We compute expropriation proxy for two time periods. Pre-Guiding expropriation equals the 3-year average expropriation from 1999-2001(for board meeting data, Pre-Guiding refers to 2001). Post-Guiding expropriation equals the 3-year average expropriation from 2002-2004. Expropriation 1 refers to the related party transactions between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, as well as the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. Expropriation 2 refers to the related party transactions that are a priori likely to result in expropriation (Commodity transaction; Asset Transaction; Fund transaction; Guarantee and pledge; Stock transaction; and Debt transaction), between the listed company and the largest shareholder of the company, firms under the control of the largest shareholder of the listed company, as well as the controlling shareholder of the listed company's largest shareholder, scaled by the total assets of the listed company. Board meeting refers to the number of board meeting per year.

		Mean	Mean		Wilcoxon Test		Proportion Test
	N	Pre-Guidelines	Post-Guidelines	Post-Guiding - Pre-Guiding	Z	Sig. (2-tailed)	Positive/Negative
Expropriation							
Expropriation 1	494	0.0959	0.1209	0.0350	-3.292	0.0010	228/182, 0.000
Expropriation 2	494	0.0837	0.1116	0.0279	-3.200	0.0014	221/182, 0.000
Board Meeting	494	6.0061	7.5051	1.4990	-9.536	0.0000	317/138, 0.000

Table 7 Panel data analysis: Independent director and expropriation

This table reports the empirical results regarding to the Random-effects GLS regression analysis on the role of independent directors as a monitor. Board size stands for the nature logarithm of the directors on board. Board independence stands for the proportion of independent directors on board. Firm size stands for the natural logarithm of total sales of the firms. Leverage equals total liabilities to total assets. Supervisor stands for the nature logarithm of the number of supervisors on the supervisory board. Employee supervisor stands for the proportion of employee supervisors to the total number of supervisors. Board meeting refers to the number of the board director meetings per year. Supervisor meeting refers to the number of the supervisor meetings per year. Regulated industry refers to a dummy which equals one if the firm belongs to electric power, steam and hot water production and supply, petroleum refining and coking, telecommunication, oil and gas extraction, railroad transportation, and highway transportation. Largest shareholding stands for the proportion of shares hold by the largest shareholder. Bureaucrat is a dummy if the largest shareholder is a government bureaucrat.

	Expropriation 1		Expropriation 2	
	Coef.	P>|t|	Coef.	P>|t|
Board size	0.149	0.060	0.113	0.120
Board independence	-0.021	0.635	0.003	0.931
Firm size	0.086	0.000	0.077	0.000
Leverage	-0.069	0.046	-0.074	0.022
Supervisor	-0.143	0.029	-0.122	0.049
Employee supervisor	0.060	0.153	0.049	0.209
Board meeting	0.001	0.605	0.001	0.727
Supervisor meeting	-0.006	0.143	-0.004	0.332
Regulated industry	0.062	0.096	0.072	0.041
Largest shareholding	0.251	0.000	0.219	0.000
Bureaucrat	-0.056	0.061	-0.048	0.089
_cons	-0.771	0.000	-0.676	0.000
Group	494		494	
Observation	1960		1960	
Overall R^2	0.0684		0.0632	

Table 8 Board structure and efficiency

This table reports the empirical results regarding to the Random-effects GLS regression analysis on board structure and firm performance. Board size stands for the nature logarithm of the directors on board. Board independence stands for the proportion of independent directors on board. Firm size stands for the natural logarithm of total sales of the firms. Leverage refers to the debt ratio (total debt to total assets). Largest shareholding stands for the proportion of shares hold by the largest shareholder. Location is a dummy if the firm located in Beijing, Shanghai or Guangzhou. Regulated industry refers to a dummy equal to one if the firm belongs to electric power, steam and hot water production and supply, petroleum refining and coking, telecommunication, oil and gas extraction, railroad transportation, and highway transportation. CEOT equals to the number of years the CEO has been with the firm. ΔGDP refers to real GDP growth of the particular year.

	Dependent variable: Tobin's Q					
	Model1		Model 2		Model 3	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Board independence	-0.363	0.494	-0.349	0.510	-26.583	0.000
Board size	-0.306	0.224	-16.818	0.000	-9.490	0.012
Firm size	-1.114	0.000	-2.930	0.000	-2.629	0.000
Board size × Firm size			1.882	0.000	1.041	0.016
Board independence × Firm size					2.959	0.000
Leverage	0.196	0.102	0.162	0.176	0.273	0.020
Largest shareholding	0.468	0.027	0.422	0.046	0.480	0.021
Location	0.431	0.000	0.412	0.000	0.420	0.000
Regulated industry	0.004	0.980	0.007	0.965	0.015	0.924
CEOT	-0.056	0.001	-0.057	0.001	-0.060	0.000
ΔGDP	-0.051	0.592	-0.053	0.575	0.040	0.665
Intercept and year dummies	Yes		Yes		Yes	
Group	494		494		494	
Observation	2936		2936		2936	
Overall R^2	0.4005		0.4041		0.4266	

Table 9 Scholars and efficiency

This table reports the empirical results regarding to the cross section test on effect of Scholar as independent directors. Scholar refers to the proportion of Scholar as independent directors on the board in 2002 respectively. Firm size equals the nature logarithm of sales in 2002. Board size equals to the nature logarithm of number of directors on the board in 2002. Leverage equals total liabilities to total assets in 2002. CEOT equals to the nature logarithm of number of years the CEO has been with the firm in 2002. Location is a dummy where firms located in the Beijing, Shanghai or Guangzhou. Regulated industry refers to a dummy equal to one if the firm belongs to electric power, steam and hot water production and supply, petroleum refining and coking, telecommunication, oil and gas extraction, railroad transportation, and highway transportation. Largest shareholding is the proportion of shares hold by the largest share holder to the total shares in 2002.

	Dependent variable: Tobin's Q			
	Model 1		Model 2	
	Coef.	P>|t|	Coef.	P>|t|
Scholar	-0.785	0.007	-17.535	0.000
Firm size	-0.512	0.000	-0.729	0.000
Firm size × Scholar			1.909	0.000
Board size	-0.244	0.408	-0.247	0.396
Leverage	-0.087	0.308	-0.127	0.135
CEOT	-0.150	0.080	-0.168	0.047
Location	0.248	0.000	0.261	0.000
Regulated industry	0.094	0.345	0.094	0.341
Largest shareholding	0.344	0.029	0.383	0.014
Constant	6.349	0.000	8.261	0.000
N	494		494	
Adjusted R2	0.1991		0.2192	