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## Board structure, political influence and firm performance— An empirical study on publicly listed firms in China

Dongping Han , Fusheng Wang & Heng Yue

## Research Note

# Board structure, political influence and firm performance — An empirical study on publicly listed firms in China

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### Abstract

The board of directors is the cornerstone of any effective corporate governance system. A well-structured board can effectively monitor and motivate management of a company for the benefit of the company's shareholders. This paper investigates the relationship between board structure and firm performance using a sample of 490 publicly listed firms in China. The characteristics of board structure we examined include: board size, inside/outside/independent directors, CEO/Chair duality, stock holdings of directors, rewards to directors and aged directors. We find significant relationship between firm performance and three characteristics: the rewards to director, the stock holdings of directors and the existence of independent directors. We also find political influences on the effectiveness of boards. When state ownership is more than 50% (state-dominating), rewards and stock holdings of directors are useful. When state ownership is less than 50% (non-state-dominating), the existence of independent directors comes into effect. In addition, our analyses indicate that state ownership affects firm performance. State ownership is positively related to firm performance in state-dominating groups while negatively related to firm performance in non-state-ownership groups.

*JEL Classifications:* G34, G3

*Keywords:* corporate governance; board structure; political influence; firm performance; empirical study

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## Introduction

In modern corporations ownership and management are separated. This separation generates conflicts of interests between managers and shareholders (Jensen 1986): managers may act for their own interests at the expense of the benefits of shareholders. To mitigate the agency problem firms set up boards of directors.<sup>1</sup> A board of directors takes two roles in the modern corporation: monitoring and motivating. An effective board of directors can monitor managers and therefore reduce management's opportunistic activities, advise management on crucial decisions and replace incapable managers if necessary. The board can also design appropriate compensation plans to align the interests of managers with those of shareholders so that managers have more incentives to work for the benefits of shareholders. Both monitoring and motivating roles should mitigate conflicts of interest and lead to the improvement of a firm's performance.<sup>2</sup>

Previous academic research has extensively examined whether certain board structures are associated with better firm performance in order to understand what kind of boards are more effective. The characteristics of board structure that have been examined include: board size (Yermack 1996; Gary and Anne 1998), inside/outside directors (Hermalin and Weisbach 1991; Baysinger and Butler 1985; Rosenstein and Wyatt 1990, etc), CEO/Chair duality (Yermack 1996; Pi and Timme 1993; Brickley, Coles and Jarrell 1997), stock ownership of directors (Morck, Shleifer and Vishny 1988; McConnell and Servaes 1990; Core, Holthausen and Larcker 1999), rewards to directors (Boyd 1994; Finkelstein and Hambrick 1989; Yermack 2002), aged directors (Core et al., 1999). Most of the empirical studies focus on large firms in the United States and the evidence from the literature is only mixed.

This paper investigates the relationship between board structure and firm performance using data from publicly listed firms in China. The Chinese government opened stock exchanges in the early 1990s. In about 12 years, China's stock markets have grown to become the eighth largest in the world with more than 1,000 listed stocks and a total market capitalisation of over US\$500 billion.<sup>3</sup> Although China's stock markets have grown quickly, listed firms in China face many special problems regarding corporate governance. For example, most of the publicly listed firms in China were originally state-owned enterprises (SOEs), run using a bureaucratic structure. No regulations about managers have been published. Investors have no experience of monitoring managers. In addition there is no market for directors, therefore there are none of the incentives associated with

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<sup>1</sup> In theory, the board of directors is the first mechanism that shareholders could use to control and influence managers' behavior (see Jensen 1993). Other corporate governance mechanisms include: high corporate leverage (Jensen 1986), managerial compensation (Hubbard and Palia 1995), and more transparent disclosure. Because the compensation plans are designed and approved by the board of directors, managerial compensation is closely related with board. See Core, Holthausen and Larcker (1999) for the influence of board on the compensations and firm performance.

<sup>2</sup> See Monks and Minow (1995) for detailed discussion about the role of the board of directors.

<sup>3</sup> The Shanghai Security Exchange was opened in December 1990 and the Shenzhen Stock Exchange was opened in July 1991. The first batch of IPOs was restricted to citizens of China (A shares). Later, Chinese companies also issued B shares to foreign investors (from January 1992) and H shares on the Stock Exchange of Hong Kong (from 1993). See Aharony et al., (2000).

director appointments.<sup>4</sup> When establishing the stock market, China followed foreign countries and made regulations governing boards of directors. For example, boards of directors are required to have more than five members and are to meet every year (see China's Security Law). However the requirements are rudimentary and provide no detailed guidance on issues such as external directors, compensation, etc. Therefore it is very interesting to know how the board structures of Chinese firms work, whether the boards are effective, and whether specific board structure can influence firm performance. Our paper intends to address the above questions.

Our paper is related to Bai et al., (2002), who examined corporate governance and firm valuation in China. They found that investors assign a premium to those firms with better corporate governance, measured using a self-constructed G index. Our paper is different in that we focus on firms' operating performance, as measured by return of equity (ROE), in contrast to their market valuation. We choose operating performance for two reasons. First we believe a study on the relationship between operating performance and board structure is more useful for China's policy making. An official statistic suggests that only about one-third of SOEs are profitable, the others are either losing money or just breaking even. Ineffective governance has been widely believed to be the underlying reason. By pushing those companies to the market and transforming them into modern corporate structures, the Chinese government expects an improvement in operating performance. Therefore if we can associate specific board structures with better operating performance, it is helpful for policy makers. Second, market valuation is based on the hypothesis of market efficiency, which an emerging market like China is unlikely to have. Our measurement based on accounting variables does not rely on this hypothesis. Also our study focuses on and examines more aspects of board structure. Bai et al., (2002) examine two characteristics about the board. One is the dummy for CEO/Chair duality (CEO serves simultaneously as chair of the board) and the other is the percentage of external directors on the board. In our study we examine six aspects of board structure.

When investigating the effects of board structure on firm performance we need to consider political influence in China. Most listed firms are transformed from SOEs. More importantly, the state usually holds the largest number of shares, often more than 50 per cent, after the firms go public. Therefore the political influence of the central government is considerable. When deciding the state ownership of the firm, the Chinese government has a policy that it will retain tight control of more important firms, while loosening control of others.<sup>5</sup> So the number of shares the state owns can indicate how tightly the state intends to control the firm. Firms with dominant state ownership are under direct supervision of the State Council. They act more like government agencies and often receive policy benefit or direct subsidies (see *Far Eastern Economic Review*, 11 November 1993, P. 72). Managers of these firms often hold important government positions before their appointment and some have political ambitions for the future. Firms without dominant state ownership are less likely to be influenced by the government. Their managers are professional managers. Thus when we investigate the role of board structure we need to consider political influence.

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<sup>4</sup> Fama and Jensen (1983) argue that directors have incentives to develop reputations and to signal to internal and external markets.

<sup>5</sup> Aharony, Lee and Wong (2000) found that the state holds more shares in firms from "protected industries" compared with firms from "unprotected industries".

Using a sample of 490 publicly listed firms in China, we examined several characteristics of board structure, including board size, inside/outside/independent directors, CEO/Chair duality, stock ownership of directors, rewards to directors, and aged directors. We found significant relationships between firm performance and three factors: the rewards to directors, the existence of independent directors and percentage of share holdings of directors. The results hold even after taking into account state ownership. The evidence indicates that specific board structures do help to improve firm performance in China. Specifically the lack of a market for directors and incentive from reputation make the rewards to directors important. Ownership of directors helps align the interests of director with the whole firm. Independent directors also help to effectively monitor firms.

We further divided the sample into two groups (state-dominated vs. non-state-dominated) based on state ownership being larger or smaller than 50 per cent. We examined the relationship between firm performance and the characteristics of board structure in each group. For non-state-dominated firms, we found significantly positive coefficients for the rewards to directors and percentage of share holdings of directors. For state-dominated firms, we found significantly positive coefficients for the existence of independent directors, while rewards and ownership were not significant. Therefore the effectiveness of boards is affected by state ownership. In addition, and more interestingly, we found that state ownership is positively related to performance for state-dominated firms and negatively for non-state-dominated firms. As we have explained before, state-dominated firms are supervised by the state council. More state shares means closer relationships with the government and therefore these firms are more likely to receive policy benefits. Non-state-dominated firms are more like independent firms. Less state shares indicate less interference from the government. Overall, the evidence suggests that political influence has an important effect on both the role of the board of directors and firm performance.

The remainder of the paper is organized as follows: section 2 discusses related literature; section 3 describes the data, methodology and variable definitions; section 4 presents empirical results and section 5 concludes the paper.

## **2. Related studies**

Board structure has attracted the attention of researchers in analytical and empirical fields for a long period. Characteristics of board structure that have been examined include: board size, inside/outside/independent directors, CEO/Chair duality, rewards to directors, stock ownership of directors and aged directors. In this section we will give a brief review of the related studies.

### *Board Size*

Lipton and Lorsch (1992) believe that when the board becomes bigger, directors are less likely to criticise the policies of top managers, take risk, or hold candid discussion about corporate performance. They recommend limiting the board size to ten persons, with

a preferred size of eight or nine. Jensen (1993) argues that a big board leads to the “great emphasis on politeness and courtesy at the expense of truth and frankness in boardrooms” and states that “when boards get beyond seven or eight people they are less likely to function effectively and are easier for the CEO to control”.

Empirical evidence is generally consistent with the notion. Using a sample of 452 large US public firms, Yermack (1996) finds an inverse relation between firm market value, as measured by Tobin’s Q, and the size of the board of directors. The loss in firm value also increases when boards become large. Gary and Anne (1998) provide supporting evidence that small boards are more effective by examining financial distress in banking firms.

### *Inside/Outside/Independent Directors*

Inside directors are those directors who are simultaneously managers of the firm while outside directors are those directors who are not managers. Whether inside or outside directors are better for the firm has been discussed for many years. Proponents of outside directors argue that inside directors share the same conflict of interest problems as management and are more easily influenced by the CEO. Fama (1980) and Fama and Jensen (1983) advocate that outside directors are crucial to the monitoring role of the boards. Proponents of inside directors believe that managers are inherently trustworthy and control should be centralized in the hands of firm managers (see for example, Donaldson 1990). Estes (1980) argue that it is very hard for outsiders to understand the complexities of the firms and to monitor managers’ activities.

During the 1990s there has been a global trend towards requiring more outside directors. At least 18 countries have witnessed publication of guidelines that stipulate minimum numbers for the representation of outside directors on corporate boards. However the empirical studies provide only mixed support for this view. Baysinger and Butler (1985) find that companies perform better if the boards have more outsiders. Rosenstein and Wyatt (1990) find that the announcement of new outside directors is associated with positive abnormal returns. Byrd and Hickman (1992) find that when inside directors hold a very high proportion of board seats bidding firms receive higher abnormal returns. Lee et al., (1992) present evidence that outsider-dominance firms earn higher stock returns than insider-dominance firms in the case of management buyout. Although evidence favoring outside directors is plentiful, other studies find no relationship or favouring of inside directors. Yermack (1996) and Hermalin and Weisbach (1991) find no significant relationship between firm performance and the fraction of outside directors. Vance (1978) finds that technical expertise and managerial experience of inside directors is helpful for corporate performance. Bhagat and Black (2002) find no correlation between outside directors and a company’s long-term performance.

Outside directors by definition include those independent directors, who have no relationship with managers or other large shareholders, and outside directors who are not managers but have some relationship with managers or largest shareholders. The independent directors are real outsiders and the above discussions apply similarly.

### *CEO/Chair Duality*

CEO/Chair duality means that the CEO serves simultaneously as the chairman of the board. The issue of CEO/Chair Duality can be seen as an extension from the issue of outsider and insider. Jensen (1993) argues that board chair and CEO should be separated, otherwise it will be “extremely difficult for the board to respond early to failure in its top management team.” Yermack (1996) suggests that agency problems are higher when the CEO is also the board chair. In contrast, Brickley et al., (1997) argue that separating titles will introduce the agency costs of controlling the behavior of the non-CEO chairman and dilute the CEO’s power to provide effective leadership.

The CEO/Chair duality is a very common phenomenon in the US, where over 75 per cent of large firms have CEO/Chair duality (National Association of Corporate Directors 1998). However empirical evidence on whether CEO/Chair duality is good for firm performance is mixed. Pi and Timme (1993) examine a sample of banks between 1987 and 1990 and find that firms with separate titles have better performance. Daily and Dalton (1994) examine 57 bankruptcy firms and find that 53.8 per cent of the failing firms have dual structure while the figure in matched firms is 37 per cent. In contrast Baliga, Moyer and Rao (1996) and Brickley, Coles and Jarrell (1997) find no evidence that separating the titles lead to improved firm performance.

### *Stock Ownership of Directors*

Jensen (1993) argues that share holdings of directors can provide incentives for directors to seek opportunities to maximize shareholder’s value. It also helps align the interests of directors with the firm. Morck, Shleifer and Vishny (1988) find significant associations between different levels of director ownership and Tobin’s Q, though the relationship is not monotonic. McConnell and Servaes (1990), Hermalin and Weisbach (1991) and Kaplan (1994) also provide supporting evidence. In contrast Gary and Anne (1998) find larger proportion of directors with share holdings leads to worse firm performance.

### *Rewards to Directors*

Appropriate rewards provide an incentive for directors. Yermack (2002) finds directors in good-performance firms have higher compensations. Researchers also related rewards with other characteristics of board structure. Boyd (1994) finds a positive relationship between rewards to directors and the proportion of outside directors while Finkelstein and Hambrick (1989) find no such relationship.

### *Aged Directors*

Directors may become less effective as they grow older since their capabilities and energy levels may decrease. NACD guideline (1996) suggests a mandatory retirement age for directors. Core et al., (1999) find that aged directors can influence CEO’s compensation, while the latter is related to firm performance.



In summary, voluminous studies have investigated the relationship between different aspects of board structure and firm performance. However the available evidence is often mixed and no final conclusion has yet been reached.

### 3. Sample and variables definitions

#### 3.1 Sample selection

This study aims to examine the relationship between board structure and firm performance in China. Our initial sample includes all 1,103 firms listed on the Shanghai Stock Exchange and the Shenzhen Stock Exchange. We gather data on boards of directors from the abstracts of the public reports in year 2000 from China Securities, Shanghai Securities News and Securities Express.<sup>6</sup> We exclude those firms without information about their board of directors or without enough information to distinguish the members of the board of directors from the members of the Supervisor Committee and from the senior managers. We also eliminate those companies with extreme weighted average ROE, which is our measure of firm performance. The final sample includes 490 public listed firms with all necessary data. Because data was hand collected our study is restricted to one year.

#### 3.2 Measurement of performance

We use weighted average ROE as our measurement of firm performance. The formula to calculate ROE is as follows:

$$ROE = \frac{P}{E_0 + E_i \times M_i \div M_0 - E_j \times M_j \div M_0},$$

Where P is net income,  $E_0$  is net assets of beginning;  $E_i$  is net assets newly added due to new stock issuing or bond converted;  $E_j$  is net assets newly reduced because of repurchasing of stock in report period or cash dividend,  $M_0$  is the amount of report period month,  $M_i$  is the amount of month of net assets newly added from next month to the end of report period and  $M_j$  is the number of month of net assets newly reduced from next month to end of report period. The use of weighted average ROE takes consideration of the changes of equity during the period, which are very common in an emerging stock market.

As we explained before, we prefer accounting performance measurement to stock valuation for two reasons. First, it is policy-oriented. We believe results on the relationship between operating performance and board structure are more interesting and helpful for policy makers. Second, our measurement does not rely on the market efficiency hypothesis.

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<sup>6</sup> The Chinese government requires that all information about listed firms must be published in at least one of these three newspapers.

### 3.3 Variables and descriptive statistics

In this paper, we examine six aspects of board structure: board size, inside/outside/independent directors, CEO/Chair duality, stock ownership of directors, reward to directors and aged directors. Definitions of the variables are presented in Table 1.

**Table 1**  
**Variable Definitions**

Variables	Definition
<b>1. Board Size</b>	
SIZE	Number of director members in the board
DSIZE	1 if number of directors is bigger than 9, 0 otherwise
<b>2. Inside/Outside/Indep. Directors</b>	
PINSIDE	Percentage of inside directors
PINDEP	Percentage of independent directors in the board
DINDEP	1 if there is an independent directors in board and 0 otherwise
<b>3. CEO/Chair Duality</b>	
DUAL	1 if CEO also holds Chair of the board and 0 otherwise
<b>4. Stock Ownership of Directors</b>	
PNSHARE	Percentage of director with ownership in the firm
PSHARE(%)	Average percentage of shares in the board
<b>5. Rewards to Directors</b>	
PNREWARD	Percentage of directors that receive rewards
REWARD	Average of rewards to directors
<b>6. Aged Directors</b>	
PAGE	Percentage of aged directors (age $\geq$ 60)
<b>Other Variables</b>	
ROE(%)	Return of equity, defined in the text
STATE(%)	Percentage of state ownership
DSTATE	1 if state ownership is more than 50%, and 0 otherwise

Board size is measured using the number of directors in the board (SIZE) and a dummy variable (DSIZE) that takes one if the number of directors is more than nine and zero otherwise. We choose nine as the cutoff because the median of board size is nine. From Table 2 we know that on average the board of directors consists of nine members with the maximum 18 and minimum 5. The figures are comparable to board size in America and Canada. Rao and Lee-sing (1996) report that the average numbers of directors in Canadian and American firms are 9.25 and 9.85 respectively. The Security Law in China requires the board to have more than five members.

We use percentage of inside directors (PINSIDE) and percentage of independent directors (PINDEP) to measure the composition of the board between inside, outside and independent directors. Table 2 indicates that, on average, more than one quarter of directors are also managers in the firms. Independent directors are much less of a proportion, with an average of only one per cent. We also include a dummy variable DINDEP to indicate that the board has at least one independent director.

**Table 2**  
**Descriptive Statistics**

	Mean	Median	STD	MAX	MIN
<b>1. Board Size</b>					
SIZE	10.96	9	2.61	18	5
DSIZE	0.42	0	0.49	1	0
<b>2. Inside/Outside/Indep. Directors</b>					
PINSIDE (%)	26	23	19	100	0
PINDEP (%)	1	0	5	38	0
DINDEP	0.08	0	0.28	1	0
<b>3. CEO/Chair Duality</b>					
DUAL	0.14	0	0.35	1	0
<b>4. Stock Ownership of Directors</b>					
PNSHARE (%)	38	33	34	100	0
PSHARE(%)	0.12	0.01	1.61	35.5	0
<b>5. Rewards to Directors</b>					
PNREWARD (%)	46	46	29	100	0
REWARD	6.81	5	7.03	75.4	0
<b>6. Aged Directors</b>					
PAGE (%)	8	0	11	80	0
<b>Other variables</b>					
ROE(%)	10.93	10.46	9.63	64.19	-89
STATE(%)	46.66	46.05	18.50	99	3.77
DSTATE	0.45	0	0.50	1	0

Note: Variable definitions in Table 1.

We use a dummy variable DUAL to indicate that CEO also holds the Chair of the board. From our sample, we can see that only 14 per cent of firms have CEO/Chair duality, which is far less than the 75 per cent in US firms.

We use the fraction of directors that own shares (PNSHARE) and the average percentage of shares that board members hold (PSHARE) to measure the characteristics of stock ownership of directors. Table 2 indicates that not all directors hold shares and even if they do, the percentage of shares is very low. On average 38 per cent of directors own shares in the firm and the average shares owned by directors are merely 0.12 per cent.

We use the fraction of directors that receive rewards from the firm (PNREWARD) and the average of rewards to directors (REWARD) to measure the rewards to directors. Table 2 indicates that 46 per cent of directors receive rewards averaging at 6,810 RMB.

Directors who are 60 years of age or older are defined as aged directors. We choose 60 years as the cutoff because it is the age of retirement in China. We use the percentage of aged directors (PAGE) to measure the characteristics of aged directors. On average eight per cent of directors are aged directors.

We also have variables to measure the state ownership of the firm (STATE), which is the percentage of state shares. In our sample, 46.66 per cent of shares are held by the central government. DSTATE takes one if state ownership is bigger than 50 per cent and

Table 3

The correlation matrix for board structure, state ownership and operating performance

	SIZE	DSIZE	PINSIDE	PINDEP	DUAL	REWARD	PNREWARD	PSHARE	PNSHARE	PAGE	STATE	DSTATE
DSIZE	0.82											
	0.01											
PINSIDE	-0.13	-0.11										
	0.01	0.01										
PINDEP	0.15	0.15	-0.01									
	0.01	0.01	0.82									
DINDEP	0.16	0.19	0.01	0.90								
	0.01	0.01	0.78	0.01								
DUAL	-0.11	-0.09	0.32	0.03	0.09							
	0.01	0.05	0.01	0.54	0.04							
REWARD	-0.02	0.03	-0.04	0.04	0.07	0.03						
	0.61	0.55	0.37	0.40	0.15	0.58						
PNREWARD	0.11	0.07	-0.41	-0.04	-0.06	-0.16	0.14					
	0.01	0.11	0.01	0.36	0.19	0.01	0.01					
PSHARE	-0.01	-0.04	-0.01	-0.01	-0.01	-0.02	0.04	-0.03				
	0.77	0.36	0.77	0.80	0.77	0.71	0.36	0.48				
PNSHARE	0.03	0.01	0.04	-0.09	-0.08	0.02	0.02	-0.15	0.04			
	0.52	0.78	0.32	0.04	0.07	0.68	0.68	0.01	0.33			
PAGE	0.08	0.04	0.01	0.09	0.09	-0.05	0.13	0.11	0.06	0.06		
	0.09	0.40	0.93	0.04	0.04	0.30	0.01	0.02	0.21	0.21		
STATE	0.01	-0.05	0.05	0.10	0.08	-0.06	-0.09	-0.14	-0.09	0.03	0.12	
	0.98	0.30	0.24	0.03	0.08	0.19	0.04	0.01	0.06	0.47	0.01	
DSTATE	-0.01	-0.06	0.05	0.07	-0.04	-0.05	-0.09	-0.09	-0.05	0.00	0.85	
	0.87	0.16	0.23	0.12	0.37	0.23	0.04	0.29	0.29	1.00	0.03	0.01
ROE	0.02	0.01	0.00	0.06	0.08	0.15	-0.02	0.12	-0.07	0.05	0.05	0.06
	0.66	0.79	0.93	0.17	0.07	0.01	0.68	0.01	0.14	0.25	0.31	0.17

zero otherwise. We use it to divide the whole sample into state-dominated and non-state-dominated groups. Table 2 indicates that this criterion places 46 per cent of firms into the state-dominated group and the remaining 54 per cent into non-state-dominated group. ROE is return of equity, our measurement of operating performance. The average of ROE is around 11 per cent.

#### 4. Empirical results

Table 3 presents the correlations matrix between board structure, political influence and operating performance. In examining the relationship between independent variables measuring board structure, we find that most correlations are pretty low, except those dummy variables with their underlying variables (for example, SIZE and DSIZE, PINDEP and DINDEP, STATE and DSTATE). This indicates that collinearity will not be a problem if we do not include both dummy and their underlying variable at the same time.

The last row of Table 3 presents the correlation between ROE and other variables. Three variables are significantly related to ROE: dummy for independent directors (DINDEP), average reward to directors (REWARD), and average percentage of shares holding (PSHARE). DINDEP is positively related to ROE, which means the existence of independent directors helps to improve firm performance. REWARD is positively related to ROE, which suggests that the rewards to directors provide incentives to directors. PSHARE is positively related to ROE, which is consistent with the notion that the interests of directors with stock ownership are more aligned with those of the firm. We find no significant correlations between ROE and board size, insider directors, aged directors or duality. The state ownership is not significantly related to ROE either.

Table 4  
Regressions of ROE on characteristics of board

	(1)		(2)	
	Coeff	P-value	Coeff	P-value
Intercept	8.72	0.001	8.65	0.001
REWARD	<b>0.20</b>	<b>0.001</b>	<b>0.20</b>	<b>0.002</b>
PSHARE	<b>0.68</b>	<b>0.010</b>	<b>0.67</b>	<b>0.013</b>
DINDEP	2.39	0.123	2.08	0.195
DSTATE	1.38	0.110	1.35	0.126
SIZE			0.07	0.686
DUAL			0.84	0.528
PAGE			1.62	0.684
PNREWARD			-1.09	0.512
PINSIDE			-1.14	0.671
R-square	3.6%		2.8%	

Note: Variable definitions in Table 1.

Table 4 shows multivariate regressions of ROE on characteristics of board. In regression (1) we used the variables that we found significantly related to performance in the correlation analysis plus DSTATE to control the effects of state ownership. Consistent with previous results, REWARD, PSHARE are significant at one per cent and three per cent respectively, which suggests appropriate incentive and share holding can help firms improve performance. DINDEP is now significant at 12 per cent after controlling other factors. DSTATE is significant at 11 per cent, which is consistent with Xu and Wang (1997) that higher concentrated ownership by state is associated with higher performance. It is also consistent with that firms with more state ownership receive state benefits. Regression (2) includes other variables for board characteristics. The results are consistent with those in regression (1). Other variables have no significant coefficients. REWARD and PSHARE remain significant at 1 per cent. DINDEP is positive but is not significant. The inclusion of other variables decreases R-square from 3.6 per cent to 2.8 per cent, which makes us prefer the more parsimonious regression (1).

As we explained before, political influence in China is an obvious factor. To further investigate the interaction between political influence, firm performance and board characteristics, we divide the whole sample into two groups: state-dominated and non-state-dominated. The state-dominated group includes firms with state ownership of more than 50 per cent while the non-state-dominated group includes firms with state ownership less than 50 per cent. We first examine whether political forces affect the board structure. Table 5 compares the means of board structures between the two groups. Two variables are significant. PNREWARD in the state-dominated group is less than that in the non-state-dominated group, which suggests that either those firms do not provide enough incentives or they rely on other channels, for example the promotion in the bureaucratic system. PAGE in the state-dominated group is larger than that in the non-state-dominated

**Table 5**  
**The political influence on board structure**

	State-Dominating	Non-state Dominating	Difference	P-value
Size	9.55	9.59	-0.04	0.87
PINSIDE	27.51	25.5	2.01	0.23
PINDEP	1.84	1.1	0.74	0.12
DINDEP	0.1	0.07	0.03	0.23
DURA	0.12	0.15	-0.03	0.38
PSHARE	2.99	18.49	-15.5	0.29
PNSHARE	37.47	37.49	-0.02	0.99
REWARD	6.41	7.17	-0.76	0.24
PNREWARD	42.56	47.9	-5.34	0.04
PAGE	8.97	6.72	2.25	0.03
ROE	11.61	10.42	1.19	0.17

Note: State-Dominated group includes firms with state ownership more than 50 per cent. Non-State-Dominated group includes firms with state ownership less than 50 per cent. Other variables defined in table 1.

group, which indicates that the government uses more old directors. Other variables do not make a significant difference between the two groups. The state-dominated group has higher ROE, but the difference is insignificant.

The political forces can not only affect board structure, but also affect how the board plays the role. For example, close state controls may limit the effectiveness of the boards. We therefore ran regressions of ROE on board structure variables in state-dominated and non-state-dominated groups respectively. The results are presented in Table 6. In the non-state-dominated group, REWARD and PSHARE are significant which is consistent with previous results. DINDEP is not significant. In the state-dominated group, REWARD and PSHARE are not significant anymore while DINDEP is significant at one per cent. The results indicate that different board characteristics take effect according to different levels of state ownership. We also find that state ownership is negatively related to performance (significant at 0.126) in the non-state-dominated group while positively related with performance (significant at less than 0.01) in the state-dominated groups. Our explanation of the phenomenon is as follows. State-dominated firms are supervised by central government. More state shares means a closer relationship with the government and the firm is therefore more likely to receive policy benefits. Non-state-dominated firms are more like independent firms. Less state ownership indicates less interference from the government. As a robustness check, we also include other independent variables in each of the regression and find no significant coefficients, which is consistent with the results from the whole sample. In summary the evidence suggests that political influence has an important effect on both the role of board of directors and firm performance.

### 5. Robustness tests

#### 5.1 Control firm size and industry effects

The above regressions indicate that the board structure and political factors can influence firm performance. Because firm performance may be affected by many other factors,

**Table 6**  
**Regressions of ROE on characteristics of boards conditional on state ownership**

	(1)STATE-Dominating		(2)Non- STATE Dominating	
	Coeff	P-value	Coeff	P-value
Intercept	0.50	0.895	11.59	0.001
REWARD	0.06	0.514	<b>0.26</b>	<b>0.002</b>
PSHARE	-0.75	0.820	<b>0.63</b>	<b>0.034</b>
DINDEP	<b>3.41</b>	<b>0.059</b>	0.29	0.909
STATE	<b>0.16</b>	<b>0.006</b>	-0.10	0.126
# of OBS	219		271	
R-square	4.1%		5.6%	

Note: State-Dominated group includes firms with state ownership more than 50 per cent. Non-State-Dominated group includes firms with state ownership less than 50 per cent. Other variables defined in table 1.

**Table 7**  
**Robustness tests: control firm size and industry effects**

*Panel A: Regression of ROE on characteristics of board*

	(1)		(2)	
	Coeff	P-value	Coeff	P-value
Intercept	-1.031	0.860	-0.283	0.963
REWARD	<b>0.146</b>	<b>0.009</b>	<b>0.140</b>	<b>0.015</b>
PSHARE	<b>0.714</b>	<b>0.003</b>	<b>0.713</b>	<b>0.003</b>
DINDEP	2.351	0.113	2.376	0.120
DSTATE	0.784	0.333	0.824	0.317
SIZE			-0.094	0.540
DUAL			0.833	0.481
PAGE			0.538	0.881
PNREWARD			0.015	0.992
PINSIDE			-1.591	0.511
Control Variables:				
TA	0.969	0.051	1.003	0.048
Industry1	0.057	0.983	0.113	0.966
Industry2	-0.990	0.521	-0.992	0.522
Industry3	-0.720	0.692	-0.694	0.706
Industry4	-0.972	0.645	-0.791	0.711
Industry5	1.085	0.685	1.115	0.679
Industry6	-2.761	0.241	-2.569	0.281
R-square	4.28%		3.47%	

*Panel B: Regressions of ROE on characteristics of boards conditional on state ownership*

	(1)STATE-Dominating		(2)Non- STATE Dominating	
	Coeff	P-value	Coeff	P-value
Intercept	-4.911	0.5938	1.181	0.895
REWARD	0.044	0.6386	<b>0.207</b>	<b>0.004</b>
PSHARE	-1.163	0.7591	<b>0.682</b>	<b>0.006</b>
DINDEP	<b>3.475</b>	<b>0.0618</b>	-0.292	0.905
STATE	<b>0.131</b>	<b>0.0429</b>	-0.069	0.198
TA	0.742	0.2784	0.935	0.210
Industry Dummies	Yes		Yes	
R-square	1.5%		7.0%	

Note: TA is log of total asset. According to Industry Classification Guidance issued by Chinese Securities Regulatory Commission, each listed firms is assigned an industry code from 'A' to 'M'. We construct our industry dummies according to the industry codes. Industry 1 includes Agriculture, Forestry, Fishing and Hunting, corresponding to code 'A', Industry 2 includes Mining, Manufacturing, and Electricity, corresponding to code 'B', 'C' and 'D', Industry 3 includes Construction, Transportation and Information industries, corresponding to 'E', 'F' and 'G', Industry 4 includes wholesalers and retailers, corresponding to 'H', Industry 5 includes Financing and Real Estate, corresponding to 'I' and 'J', Industry 6 includes Service and Media, corresponding to 'K' and 'L', Industry 7 includes Comprehensive and others, corresponding to 'M'. The regressions include dummies for Industry 1- Industry 6. State-Dominated group includes firms with state ownership more than 50 per cent. Non-State Dominated group includes firms with state ownership less than 50 per cent. Other variable definitions in Table 1.



we include other control variables in this section. Specifically we control firm size and industry effects. Firm size is measured as a log of total assets. Industries are defined based on the industry codes assigned by the Shanghai or Shenzhen Exchange Markets. In 2001, the Chinese Securities Regulatory Commission issued “Industry Classification Guidance”, which requires listed firms be classified into an industry according to their major operation income. Following the guidance, the Shanghai and Shenzhen Exchange Markets assigned each firm a code, ranging from ‘A’ to ‘M’.<sup>7</sup> We constructed seven industry dummies based on these codes. More detailed classification produced similar results.

The regressions controlling firm size and industry effects are shown in Table 7. The results are similar to results shown in Table 4 and Table 6.

## *5.2 Use Market-to-Book Ratio as dependent variable*

Although we prefer the accounting measurement of firm performance, we use a market-based measurement for the robustness tests.<sup>8</sup> The benefit of market-based measurement is that it includes the market expectation of the firm’s future growth, which may be related to board structure and political influence. We use the log of market-to-book ratio as our dependent variable and rerun regressions in Table 4 and Table 6. We also control size and industry effects. The results are shown in Table 8.

Panel A of Table 8 indicates that rewards and stock ownership of directors are positively related to market-to-book ratios, consistent with the results in Table 4. The only difference is that the existence of independent directors and the state ownership are not marginally significant anymore. Other variables are not significant, as in the previous table. Panel B includes regressions in sub-samples of the state-dominated and non-state-dominated groups. For the state-dominated group, we find that the reward is significant while the dummy of independent directors is insignificant. For the non-state-dominated group, we find reward and ownership shares are both significant and consistent with previous results. In addition, we find again that state ownership has different effects on firm performance conditional on whether state ownership is dominating, and the effects are significant in both groups.

In summary our results are robust as to size effects, industry effects and the use of market-based measurement of firm performance.

## **6. Conclusions**

We investigated the relationship between board characteristics and performance for listed firms in China. Using ROE to measure firm performance, we found appropriate rewards, stock ownership of directors, and the existence of independent directors helps to improve firm performance. We found no results that board size, aged directors, insider

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<sup>7</sup> Each industry can be further classified into sectors.

<sup>8</sup> We thank the referee for this suggestion.

**Table 8**  
**Robustness tests: Use market-to-book as dependent variable**

*Panel A: Regression of MB on characteristics of board*

	(1)		(2)	
	Coeff	P-value	Coeff	P-value
Intercept	6.341	0.001	6.253	0.001
REWARD	<b>0.008</b>	<b>0.004</b>	<b>0.007</b>	<b>0.010</b>
PSHARE	<b>0.033</b>	<b>0.003</b>	<b>0.033</b>	<b>0.003</b>
DINDEP	0.064	0.356	0.048	0.495
DSTATE	-0.013	0.731	-0.006	0.882
SIZE			0.007	0.312
DUAL			0.081	0.142
PAGE			0.151	0.367
PNREWARD			0.098	0.171
PINSIDE			-0.033	0.769
Control Variables:				
TA	-0.380	0.001	-0.382	0.001
Industry1	-0.223	0.073	-0.225	0.071
Industry2	-0.219	0.003	-0.229	0.002
Industry3	-0.049	0.564	-0.076	0.375
Industry4	-0.270	0.006	-0.275	0.006
Industry5	0.199	0.113	0.185	0.142
Industry6	-0.158	0.152	-0.176	0.112
R-square	39.8%		40.0%	

*Panel B: Regressions of MB on characteristics of boards conditional on state ownership*

	(1)STATE-Dominating		(2)Non- STATE Dominating	
	Coeff	P-value	Coeff	P-value
Intercept	6.017	0.001	6.729	0.001
REWARD	<b>0.012</b>	<b>0.012</b>	<b>0.005</b>	<b>0.087</b>
PSHARE	-0.167	0.390	<b>0.032</b>	<b>0.003</b>
DINDEP	0.084	0.378	0.035	0.744
STATE	<b>0.007</b>	<b>0.037</b>	<b>-0.005</b>	<b>0.028</b>
TA	-0.388	0.001	-0.398	0.001
Industry Dummies	Yes		Yes	
R-square	35.7%		42.4%	

Note: The dependent variable is MB, the log of market-to-book ratio. Other variables are defined in previous tables.

directors or CEO/Chair duality can affect firm performance. We also found that there are political influences on the relationship between board characteristics and firm performance. According to the levels of state ownership, different board characteristics take effect. In the non-state-dominated group, rewards and shares ownership are important to firm performance while in the state-dominated group, the existence of independent directors has an effect. Also state ownership is associated with firm performance in both groups. In the non-state-dominated group, state ownership is negatively related to operating performance while in the state-dominated group, the relationship is positive.

Our paper has several limitations. First, we only document the relationship between firm performance and the characteristics of boards but we cannot infer whether the relationship is a causal relationship. Previous research suggests firm performance and board characteristics may be simultaneously decided. Secondly, we have only analyzed data in one year, therefore we can neither examine if our evidence will apply to other time periods nor how the relations vary over time. Notwithstanding these limitations, our empirical results draw a picture about the effectiveness of board of directors in China and will help policy making. Future research should extend the time period and examine why specific board characteristics can improve firm performance.

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