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Corporate Governance, State Ownership and Cross-listing

Evidence from Chinese A-Share Listed Firms

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Abstract

This paper analyses the relationship between corporate governance, state ownership and cross-listing by using data from 2,113 Chinese A-share listed firms during the period 2008 to 2013. Firstly, corporate governance features in state-owned vs. non-state-owned and cross-listed vs. domestically-listed firms are examined. Secondly, this paper investigates whether state ownership and cross-listing affect the sensitivity of the relation between corporate governance and firm value in Chinese listed firms. The effects are rather mixed.

JEL-Codes: G30, G34, M12, M50, P31

Corporate Governance, Staatseigentum und Zweitlisting

Evidenz von chinesischen Firmen der Aktienklasse A

Zusammenfassung

Der vorliegende Beitrag analysiert die Beziehung zwischen Corporate Governance, Staatseigentum und Zweitlisting anhand 2.113 chinesischer Firmen der Aktienklasse A in dem Zeitraum von 2008 bis 2013. Erstens werden Eigenschaften der Corporate Governance in staatlichen gegenüber nicht-staatlichen und doppelt gelisteten gegenüber nur inländisch gelisteten Unternehmen untersucht. Zweitens untersucht dieser Beitrag, ob Staatseigentum und Zweitlisting einen Einfluss auf die Beziehung von Corporate Governance und Unternehmenswert chinesischer Firmen haben. Die Effekte sind eher gemischt.

Im Internet unter:

http://www.wiwi.uni-muenster.de/io/forschen/downloads/DP-IO_02_2015.pdf

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Corporate Governance, State Ownership and Cross-listing

Evidence from Chinese A-Share Listed Firms*

1. Introduction

As one of the largest and fastest developing economies around the world, China's economy has received more and more attention from researchers. However, many studies focussing on China's economy suffer shortcomings, especially those in the area of corporate governance of Chinese firms. Before the establishment of the modern enterprise system, corporate governance was an entirely foreign concept for Chinese firms. Thus, many studies try to interpret the phenomenon in China simply by applying Western theories. Many of these studies are now out of date, because recently many regulatory changes and new policies that affect corporate governance have been applied in China (Jiang and Kim 2015). Therefore, there is a demand for Chinese corporate governance studies using the latest data and analysing corporate governance in the specific and current contexts of Chinese firms.

Most corporate governance studies focus on investigating the direct relation between corporate governance features (e. g., board structure and managerial compensation) and firm value. However, they neglect that the specific contexts of firms could also influence the effectiveness of corporate governance. For Chinese firms, especially state ownership and cross-listing should be taken into account.

Firstly, classic corporate governance literature often discusses the effect of large shareholders. For example, some argue that block shareholders have an influential role in mitigating agency problems between managers and shareholders (Shleifer and Vishney 1997). However, others claim that block ownership above a certain level may lead to wealth expropriation from small shareholders (e. g., Fama and Jensen 1983). In China, companies normally have a concentrated ownership structure. In addition, there is a high level of state ownership in many listed firms. Due to this situation, it seems reasonable to examine how state ownership could affect corporate governance in Chinese listed firms.

Secondly, Chinese firms have started to issue shares on foreign stock exchanges in the early 1990s. Since then Chinese firms play an increasing role in the international arena. Through

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cross-listing, many firms aim to bond themselves to a higher corporate governance standard and a more efficient market discipline. However, the effect of cross-listing on Chinese firms is not clear, in particular, how it affects the corporate governance, as only a few studies have investigated this issue yet (Cheung et al. 2008, Jiang and Kim 2015). To fill this research gap, this paper will examine the effect of cross-listing on Chinese listed firms, too.

This study applies panel data regression techniques to investigate these research questions. The dataset includes 12,669 firm-year observations of non-financial Chinese A-share firms from 2008 to 2013.

The rest part of the paper proceeds as follows. Section 2 discusses the related literature. Section 3 presents the data sample and methodology. Section 4 provides descriptive statistics and data summary. Section 5 presents the empirical results and section 6 concludes.

2. Institutional Background and Literature

2.1. State Ownership

In China, state-owned firms represent the backbone of the national economy. So it is not only important to test the direct relationship between state ownership and firm value, but it is even more important to test how the sensitivity of the relation between corporate governance and firm value is affected by state ownership.

Before the Split Share Structure Reform, in Chinese listed firms the shares existed in form of tradable shares and non-tradable shares. The tradable shares were (and are) mainly referred to as A-shares (B-shares, H-shares etc. are also tradable shares), which were legally traded on the stock market. The non-tradable shares were basically composed of state-shares and legal person-shares, which belonged to the state or to the domestic institutions that were ultimately owned by the central or local government. The tradable shares and non-tradable shares used to have the same legal rights in several respects, such as voting rights and cash flow rights. However, the stock prices were different between tradable and non-tradable shares, mainly because the non-tradable shares were not allowed to be traded on the open market but could only be transferred by negotiation and auction.

The existence of non-tradable shares hindered the development of the Chinese financial market. For the state as controlling shareholders pushed listed firms to pursue other objectives rather than profit maximisation. As a consequence, major shareholders were relatively indif-

ferent to the stock price movement. Besides, lower free float also lead to more illiquidity and volatility in the domestically market (Beltratti 2012). Due to the limitations mentioned above, the Chinese government announced the Split Share Structure Reform in April 2005, which aimed to convert the non-tradable shares into tradable shares by compensating the shareholders of tradable shares through bonus shares, cash compensation and options. By mid-2006, about 94% of the listed firms had completed the conversion process (Yu 2013). Since then, the market mechanism is increasingly important for China's capital market.

Studies focusing on the relation between state ownership and firm value often found negative results for Chinese firms. For example, Qi et al. (2000) found that state equity ownership is negatively related to firm operating performance. However, after the Split Share Structure Reform, the state-ownership may gradually lose its negative effect on firm value because the market mechanism is playing an increasingly important role. The data sample used in this paper covers the time period between 2008 and 2013, which is a reinforcement phase of the Split Share Structure Reform. Thus, one could expect firstly that state ownership will lose its negative effect on firm value but may improve value in Chinese firms instead. Secondly, in state-controlled firms the corporate governance mechanism may improve more significantly than in other firms. In China the modern enterprise system and the corporate governance reform started from the state-owned enterprises but not from private-owned firms. Therefore, state ownership is expected to improve the sensitivity of the relation between corporate governance and firm value.

2.2. Cross-listing and Bonding Hypothesis

According to La Porta et al. (1997), the institutional framework of a country plays an important role in equity valuation and financing. Therefore, firms from countries with poor institutional frameworks choose to cross-list their stocks on a foreign stock exchange, especially in countries that have a better legal environment. The cross-listing behaviour allows firms to bond themselves to a higher corporate governance standard and a more efficient market discipline. This interrelation is known as the bonding hypothesis. In order to interpret the bonding hypothesis, legal bonding and reputational bonding are normally distinguished by researchers. On the one hand, a firm realises legal bonding by committing to stricter rules set by the foreign stock exchanges or market regulators. On the other hand, a firm builds on reputational bonding by maintaining good corporate governance mechanisms (Wojcik et al. 2005, Charitou et al. 2007).

Former researchers investigated the effect of cross-listing mainly by examining foreign firms that listed on the US stock exchanges. They found that after cross-listing, listed firms experience higher valuation and greater access to capital and have a richer information environment (Doidge et al. 2009, Charitou et al. 2007). However, some studies still question the legal and reputation enforcement of the bonding hypothesis. For example, Siegel (2005) raises questions about the effectiveness of legal bonding by arguing that in Mexican firms cross-listed on the US exchanges, the insiders who expropriate assets from firms were not punished by US law enforcement. Licht (2003) suggests that reputational bonding is also not effective by pointing out that the policy of the Securities and Exchange Commission (SEC) relieves its corporate governance requirements for foreign issuers in order to attract them to list on the US stock exchanges.

In China, listed firms definitely have the motivation to be cross-listed on other foreign stock exchanges due to poor investor protection and a relatively low corporate governance level (Allen et al. 2005). However, only few studies investigated the benefits of cross-listing in Chinese firms with a specific focus on corporate governance and their results are mixed. For example, Cheung et al. (2008) argue that the corporate governance practices of cross-listed firms are not related to the firm value. Nevertheless, Li et al. (2015) find that the benefits of cross-listing are reflected by foreign investors' ability to utilise firm-specific information. The level of information improvement provided by foreign investors depends on the quality of corporate governance in cross-listed firms. Besides, Chi and Zhang (2010) find mixed results and they claim that cross-listing may have greater impact on executive incentives in state-owned firms than in private-owned firms. Based on the bonding hypothesis and the literature mentioned above, this paper assumes that cross-listing improves corporate governance in Chinese firms. Moreover, it may have a mixed effect on the sensitivity of the relation between corporate governance and firm value in Chinese firms.

2.3. Corporate Governance Issues

2.3.1. Board Characteristics

Boards of directors are considered as one of the most important internal corporate governance mechanisms, which act on behalf of the shareholders with the task to supervise the firms. Regarding the board size, some claim that smaller boards are more effective due to fewer coordination problems and less director free-riding in the company (Jensen 1993, Yermack 1996). However, others support the argument that larger boards may be more effective as they can

potentially benefit listed firms with more experience and knowledge resulting in better advices and guidance (Dalton et al. 1999, Hermalin and Weisbach 1988). Anyway, it is often argued that there is no perfect board size that fits all kind of firms. For example, Coles et al. (2008) claim that it is better for complex firms to have larger boards while for R&D-intensive firms it is recommended to have more insiders on board. Regarding the board independence, most studies about firms in Western countries support the argument that more independent directors on board improve the firm performance either by conducting a monitoring role or an advising role (e. g., Linck et al. 2008).

According to the Chinese Company Law, the board of directors should have 5 to 19 directors depending on firm type. Since 2003, the board is also required to have at least one-third independent directors. Generally, empirical studies of Chinese firms focus less on the relation between board size and firm value, but if they do, the results are mostly insignificant. For example, Cho et al. (2009) and Conyon and He (2011) report that board size has a negative but insignificant effect on firm performance. The results may be due to the fact that they did not distinguish the specific contexts of firms such as state ownership and cross-listing that may influence corporate governance. In addition, most studies focusing on the influence of independent directors in Chinese firms find insignificant results (e. g., Conyon and He 2011, Jiang and Kim 2015). They argue that the reason for this is that the board structure in China appears to be the outcome of regulations. The average ratio of board independence is around 0.33, which is the legal minimum by the Code of Corporate Governance for Listed Companies in China. Besides, the data summary in the paper of Jiang and Kim (2015) shows that most Chinese firms did not have independent directors until it was legally required in 2002 and 2003.

CEO and chairman duality refers to the situation that the CEO and the chairman of the board is the same person. It has often been argued that CEO and chairman duality could be a problem for corporate governance that reduces firm value. The CEO's power would be too large and thus would reduce the effectiveness of the board to monitor managers. This can result in a weakened investor protection. Bai et al. (2004) have found empirical evidence that in Chinese firms the CEO and chairman duality has a negative effect on firm value.

2.3.2. Managerial Compensation

How to supervise and motivate managers are the core issues discussed in corporate governance theories. The board of directors is designed to supervise the managers whereas manage-

rial compensation is designed to incentivise managers for their contributions to firm performance and thereby mitigate the agency cost between managers and shareholders. However, in Chinese firms, especially in state-owned ones, researchers often find a low effect between managerial compensation and firm performance. They argue that in state-owned Chinese firms the managerial pay is not allowed to be too much higher than the average employees' pay in order to maintain social balance (e. g., Firth et al. 2006, 2007). Furthermore, the managers in state-owned firms are largely motivated by other incentives, such as non-pecuniary perks (Jiang and Kim 2015) or job promotions to a high-level government position after their term of office in state-owned firms (e. g., Conyon and He 2011).[1] In Chinese private-owned firms and family-owned firms, the situation is not better. Many non-state-owned firms are family-owned and less willing to fire managers who are family members. As a result, they do not compensate the managers efficiently and do not reward managers according to their performance (Cheng et al. 2015).

In 2005 the China Securities Regulatory Commission has released "Measures of Equity Incentive in Listed firms" to require state-owned firms to design appropriate incentives for managers. Moreover, after the Split Share Structure Reform, the market mechanism is playing a more important role also in state-owned firms. So it is expected that the interaction of state-ownership and managerial pay may have a positive effect on firm value. Besides, according to the bonding hypothesis, cross-listing may also improve the sensitivity of the relation between managerial pay and firm value.

3. Data and Methodology

3.1. Data

The data sample in this paper covers all the non-financial A-share listed firms on both the Shanghai and Shenzhen stock exchanges from 2008 to 2013. There are in total 2,113 firms included in the database. Among them, 57 are cross-listings, which are also listed on one or more foreign stock exchanges. Besides, 939 firms are state-owned firms. All the data is obtained from the China Stock Market and Accounting Research database (CSMAR) provided by the GTA Information Technology Company. In this paper, the market to book ratio is chosen as the empirical proxy for (relative) firm value. Four corporate governance features are particularly discussed: board size, board independence, CEO and chairman duality, and man-

[1] In Chinese state-owned firms, some top managers and directors are also appointed by the government, so they are more government employees rather than professional managers.

agerial compensation. Moreover, in the regression models the following company information is controlled for: total assets (total revenue), leverage, and asset growth.

3.2. Methodology

To investigate the research question whether state-ownership (cross-listing) affects the sensitivity of the relation between corporate governance and firm value, the following model is estimated:

$$Market\ to\ book\ ratio_{i,t} = C_0 + \sum_{d=1}^{4} C_d GovernVars_{i,t} + State\ (Cross) * \sum_{e=5}^{8} C_e\ GovernVars_{i,t} + \sum_{f=9}^{12} C_f\ ControlVars_{i,t} + \varepsilon_{i,t} \quad (1)$$

The market to book ratio, which is a common measure of firm value, is the dependent variable in the equation (1). It is calculated as the market value of the firm divided by the book value of the firm. On the one hand, the above model tests the effects of corporate governance variables as well as the effect of state-ownership (cross-listing) on firm value respectively. On the other hand, interaction terms are used to test whether state-ownership and cross-listing affect the sensitivity of the relation between corporate governance and firm value, which will be mainly discussed in this paper.

Of the independent variables, four are used as the proxies for corporate governance features: board size, board independence, CEO = chairman, and managerial pay. Board size is the total number of directors on board while board independence is the proportion of independent directors on board. CEO = chairman is a dummy variable, which equals to 1 if the CEO and the chairman is the same person. Because share options as executive pay have only recently been allowed in China, in this paper the managerial pay refers to the sum of cash compensation (salary and bonus) and the management shareholdings. The variable is calculated as the total amount of the top three managers pay divided by three.

The two dummy variables state and cross are interacted with the corporate governance variables to test whether state ownership and cross-listing can influence the sensitivity of the relation between corporate governance and firm value. The dummy variable state equals to 1 if the state is the biggest shareholder of the listed firm, otherwise it equals to 0. The dummy variable cross equals to 1 if the firm is cross-listed, otherwise it equals to 0. Other company information is also controlled for in the model: log (total asset), log (total revenue), leverage, and asset growth. The data description and summary statistics are provided in section 4.

This paper uses panel data from 2008 to 2013 for the empirical analysis. Firstly, the variables included in this paper were examined to see whether there are extreme values. The variables market to book ratio and leverage have extreme values that should be dealt with. In order to remove the effect of outliers, the firm value, market to book ratio has been Winsorised at 1 % in both tails of the distribution. Secondly, before constructing the regression models, the Fisher test for panel unit root was used to test the stationarity of the panel. In this test, the hypothesis of a unit root has been rejected, which indicates that the data set is stationary. A stationary data sample will avoid the possibility of spurious regressions in the following steps. Thirdly, the Hausman test is used to select the regression models. The p-value is less than 0.001, which suggests that a fixed-effect regression model is more suitable for the data sample. Lastly, before and after conducting the fixed-effect regressions, it was also tested whether the panel data have serial correlations and heteroscedasticity. [2] The results show that heteroscedasticity is existent. To deal with this problem, finally, the Feasible Generalised Least Squares (FGLS) regression model is chosen to make empirical analyses. Details will be reported in section 5.

4. Data Description and Summary Statistics

4.1. Data Description

Table 1 presents descriptive statistics for all A-share listed firms in Shanghai and Shenzhen Stock Exchanges from 2008 to 2013. There are in total 12,669 firm-year observations included in the data sample. The result is presented by industry, with the listing activity taking place mainly within the consumer (goods) industry (34.34 %), materials industry (20.17 %), and industrials industry (19.11 %). Furthermore, the industry of information technology (8.86%) and properties and construction (9.48 %) also account for larger percentages compared to other industries.

In the data sample, 5,634 firm-year observations of state-owned firms are included. The state-owned firms are mainly from the following three industries: consumer industry (34.74 %), materials industry (19.31 %), and industrials industry (19.52 %). For cross-listed firms, the sample consists of 338 firm-year observations. The cross-listed firms are mainly from the industrials industry (34.62 %), consumer industry (17.75 %), energy industry (17.75 %), and

[2] Before conducting the orders of testing serial correlation and heteroscedasticity, it is necessary to make a Hausman test. This is because STATA uses different orders to test serial correlation and heteroscedasticity in fixed-effect regression models and random-effect regression models.

materials industry (17.46 %). Besides, no firms from the information technology industry can be found in the cross-listed firms' data sample.

Industry	Whole sample		State-owned firms		Cross-listed firms	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Consumer	4,350	34.34	1,957	34.74	60	17.75
Energy	450	3.55	211	3.75	60	17.75
Industrials	2,421	19.11	1,100	19.52	117	34.62
Information technology	1,122	8.86	467	8.29	0	0
Materials	2,555	20.17	1,088	19.31	59	17.46
Properties and construction	1,201	9.48	535	9.50	12	3.55
Telecommunications	84	0.66	37	0.66	6	1.78
Utilities	456	3.60	225	3.99	24	7.10
Others	30	0.24	14	0.25	0	0
Number of observations	12,669	100	5,634	100	338	100

Table 1: Descriptive Statistics of Chinese A-Share Listed Firms

4.2. Summary Statistics

Table 2 presents summary statistics of state-owned firms and non-state-owned firms. The dependent variable average market to book ratio in state-owned firms is smaller than in non-state-owned firms (1.72 vs. 2.05). Regarding the corporate governance variables, the board size of state-owned firms is 9.45 whereas in non-state-owned firms the board size is smaller (8.58). Moreover, table 2 shows that the board independence in both kinds of firms is 0.33. It suggests that the board independence in Chinese firms is just the minimum set by regulation. Since 2002, the China's Corporate Governance code has regulated that listed firms should have at least one-third of independent directors on their boards. Besides, the CEO and chairman duality in state-owned firms is only 0.10 and larger in non-state-owned firms (0.30). This makes sense because non-state-owned firms in China are normally private-owned firms or family-owned firms, in which the founders or family members normally control the firms as CEO and chairman. Furthermore, it has been found that the managerial compensation in state-owned firms is higher than in non-state-owned firms (0.52 million yuan vs. 0.46 million yuan). In general, consistent with other studies (Conyon and He 2011, Jiang and Kim 2015), the CEO and chairman duality ratio and the managerial compensation in Chinese firms are much lower than for firms in developed counties.

Variable	Obs.	Mean	Median	Std. Dev.	Min.	Max.
Panel A: State-owned firms						
Market to book ratio	5,606	1.72	1.34	1.21	0.58	10.85
Board size	5,569	9.45	9	1.93	4	18
Board independence	5,569	0.37	0.33	0.06	0.09	0.80
CEO = chairman	5,520	0.10	0	0.30	0	1
Managerial pay (million yuan)	5,617	0.52	0.39	0.51	0	10.23
Log (total asset)	5,627	8.42	8.21	1.42	-0.74	14.67
Log (total revenue)	5,621	7.85	7.69	1.61	-4.77	14.87
Leverage	4,656	1.73	1.21	1.75	-1.25	10.97
Asset growth	5,627	0.14	0.09	0.43	-1	21.08
Panel B: Non-state-owned firms						
Market to book ratio	5,541	2.05	1.50	1.72	0.58	10.85
Board size	5,589	8.58	9	1.59	4	16
Board independence	5,589	0.37	0.33	0.05	0.14	0.67
CEO = chairman	5,524	0.30	0	0.46	0	1
Managerial pay (million yuan)	5,621	0.46	0.35	0.44	0	7.21
Log (total asset)	5,628	7.53	7.48	1.18	-2.97	11.80
Log (total revenue)	5,604	6.90	6.96	1.49	-4.51	11.70
Leverage	4,164	1.52	1.17	1.37	-1.25	10.97
Asset growth	5,627	0.26	0.12	0.71	-1.00	33.19

Table 2: Summary Statistics of State-owned Firms and Non-state-owned Firms

Since panel data need specific procedures to cope with covariance, a t-test is inappropriate to test the differences of corporate governance variables and other company information between state-owned firms and non-state-owned firms. It is more appropriate to use a panel data regression analysis with the dummy variable state as an independent variable. Random-effect regression models are used to realise the above mentioned research objectives. In each model, the corporate governance variables (e. g., board size) and other company information (e. g., asset growth) are dependent variables, whereas the dummy variable, state, is the independent variable. Table 3 reports the significance of the coefficients of the dummy variable state, representing the differences of corporate governance variables and other company information between state-owned and non-state-owned firms. Besides, the z-statistics are also presented.

Table 3 shows that state-owned firms and non-state-owned firms are significantly different considering both the corporate governance features and other company information. For example, the board size of state-owned firms is significantly larger than of non-state-owned firms whereas the board independence as well as CEO and chairman duality are significantly lower in state-owned firms whereas managerial pay is higher. Unsurprisingly, the average firm size and leverage of state-owned firms are significantly larger. However, asset growth is significantly lower in state-owned firms.

Dependent variables	Coefficients	z-statistics
Board size	0.862***	25.89
Board independence	-0.004***	-3.64
CEO = chairman	-0.120***	-27.08
Managerial pay (million yuan)	0.177***	6.59
Market to book ratio	-0.330***	-11.70
Log (total assets)	0.850***	35.29
Log (total revenue)	0.919***	31.81
Leverage	0.207***	6.15
Asset growth	-0.112***	-10.08
*Note: *** p <.001.*		

Table 3: Comparison of Corporate Governance Variables in State-owned Firms and Non-state-owned Firms

Table 4 presents the summary statistics of cross-listed firms and domestically-listed firms. In the data sample only 57 firms are cross-listed on one or more foreign stock exchanges while the other 2,056 firms are only listed domestically. To compare the corporate governance differences between cross-listed firms and domestically-listed firms, a matched sample was constructed as follows: Each cross-listed firm is matched by firm size and industry with a firm that is only domestically listed. In particular, a domestically-listed firm is only selected when the median of total asset of this firms is closest with another cross-listed firms in the same industry (median is chosen to avoid the extreme values of total assets). Since all cross-listed firms are almost the largest firms in their industries, firms in the matched sample still have smaller firm size. Finally, a sample of 633 firm-year observations of non-financial Chinese firms during 2008-2013 is constructed.

In table 4, the average market to book ratio in cross-listed firms is 1.18, which is lower than in the constructed sample of domestically-listed firms (1.73). The board size of cross-listed firms is 10.36 while in domestically-listed firms this ratio is only 8.97. Besides, table 4 also shows that the average board independence in cross-listed firms is a little bit higher than in domestically-listed firms. However, the ratios of board independence in cross-listed firms and domestically-listed firms are still near 0.33, which also indicates that board independence in Chinese firms may be mainly affected by the regulation as mentioned before. Moreover, the CEO and chairman duality ratio in cross-listed firms is lower than in domestically-listed firms (0.10 vs. 0.20). Lastly, table 4 shows that the average managerial pay is 0.88 million yuan per year in cross-listed firms, which is 0.40 million yuan higher than in comparable domestically-listed firms. It reflects that cross-listing may improve the managerial pay.

Variable	Obs.	Mean	Median	Std.Dev.	Min	Max
Panel A: Cross-listed firms						
Market to book ratio	331	1.18	1.01	0.56	0.64	5.72
Board size	327	10.36	9	2.39	4	18
Board independence	327	0.38	0.36	0.07	0.27	0.71
CEO = chairman	326	0.10	0	0.30	0	1
Managerial pay (million yuan)	331	0.88	0.72	0.70	0.04	4.65
Log (total asset)	332	10.52	10.75	1.67	6.14	14.67
Log (total revenue)	332	10.01	10.13	1.85	5.28	14.87
Leverage	291	1.56	1.11	1.62	-1.15	10.88
Asset growth	332	0.13	0.11	0.18	-0.34	1.45
Panel B: Domestically-listed firms						
Market to book ratio	297	1.73	1.39	1.09	0.64	5.72
Board size	299	8.97	9	1.79	4	18
Board independence	299	0.37	0.33	0.05	0.09	0.80
CEO = chairman	300	0.20	0	0.40	0	1
Managerial pay (million yuan)	300	0.48	0.36	0.47	0	10.23
Log (total asset)	301	7.90	7.81	1.29	-2.97	13.57
Log (total revenue)	300	7.30	7.27	1.54	-4.77	13.43
Leverage	247	1.71	1.18	1.59	-1.15	9.31
Asset growth	301	0.20	0.10	0.60	-1.00	33.19

Table 4: Summary Statistics of Cross-listed Firms and Domestically-listed Firms

As mentioned above, since the t-test is not appropriate in panel data analysis, this paper applies random-effect regression models to test the differences of corporate governance variables and other company information between cross-listed firms and domestically-listed firms. In each model the corporate governance variables and other company information are dependent variables. Table 5 reports the significance of the coefficients of the independent dummy variable cross, which represent the differences of corporate governance variables and other company information between cross-listed firms and domestically-listed firms.

Dependent variables	Coefficients	z-statistics
Board size	1.060***	3.28
Board independence	0.013	1.37
CEO = chairman	-0.093*	-2.38
Managerial pay (million yuan)	0.758**	2.81
Market to book ratio	-0.366***	-4.24
Log (total assets)	2.153***	9.43
Log (total revenue)	2.224***	8.73
Leverage	0.360*	2.12
Asset growth	-0.058*	-2.44
*Note: * p <.05, ** p <.01, *** p <.001.*		

Table 5: Comparison of Corporate Governance Variables in Cross-listed Firms and Domestically-listed Firms

In cross-listed firms, board size and managerial pay are significantly larger (higher) than in domestically listed firms. Moreover, the board independence is larger in cross-listed firms, but the difference is insignificant. The CEO and chairman duality is lower in cross-listed firms. Regarding the other company information, table 5 shows that in cross-listed firms the firm size and leverage is significantly larger, but the asset growth is significantly lower than in domestically-listed firms.

5. Empirical Results

Table 6 presents the results of FGLS regression models based on equation (1). In all three models, market to book ratio is the dependent variable as a proxy for firm value. In model 1, other company information is not controlled for. In model 2 and 3, this information is controlled for and the results show that the control variables are highly significant in explaining the firm value. In detail, there is a negative relation between firm size (log (total asset) or log (total revenue)) and firm value at the level of 0.1 %. Besides, asset growth and the leverage are also significantly negative related to firm value.

	Model 1	**Model 2**	**Model 3**
Independent variables	**Dependent variable: Market to book ratio**		
Firm is state-owned	0.678 (4.33)***	0.168 (1.37)	0.445 (3.6)***
State * board size	-0.016 (-1.75)(*)	-0.022 (-3.21)***	-0.028 (-3.75)***
State * board independence	-1.929 (-6.54)***	0.048 (0.20)	-0.288 (-1.20)
State * CEO = chairman	0.095 (2.40)*	-0.018 (-0.57)	-0.069 (-2.03)*
State * manager pay	0.051 (1.72)(*)	0.118 (4.24)***	0.034 (1.35)
Board size	-0.036 (-4.80)***	0.051 (9.29)***	0.024 (3.91)***
Board independence	0.642 (2.69)**	1.287 (7.04)***	0.365 (1.86)(*)
CEO = chairman	0.024 (1.03)	-0.069 (-3.39)***	-0.031 (-1.52)
Managerial pay (million yuan)	-0.200 (-8.45)***	0.137 (5.80)***	0.094 (4.29)***
Log (total asset)		-0.437 (-72.70)***	
Leverage		-0.030 (-8.56)***	-0.047 (-15.53)***
Asset growth		-0.063 (-4.95)***	-0.128 (-11.06)***
Log (total revenue)			-0.319 (-69.82)***
Constant	1.862 (14.24)***	4.253 (40.57)***	3.746 (33.69)***
N	10,832	8,470	8,454
Note: (*) *p <.10, * p <.05, ** p <.01, *** p <.001,* z statistics are presented in parentheses. In FGLS regression models STATA automatically drops the groups of observations that only have one observation in the group.			

Table 6: Sensitivity of the Relation between Corporate Governance and Firm Value Affected by State Ownership

The state ownership itself has a positive effect on firm value, although this is insignificant in model 2. This is consistent with the assumption mentioned above that state-ownership may have lost its negative effect on firm value after the Split Share Structure Reform. As far as the interaction terms are concerned, there are significantly negative effects in the sensitivity of the relation between board size and firm value for state-owned firms relative to non-state-owned firms. This indicates that in state-owned firms a smaller board size will improve the firm value due to fewer coordination problems and less director free-riding. However, in model 2 and 3 the board size itself has an even higher positive effect. Considering the board independence, when control variables are included model 2 and 3 show that state-ownership does not improve the sensitivity of the relation between board independence and firm value. A possible explanation is that in Chinese listed firms the employment of independent directors depends on regulations instead of a free choice by listed firms. Moreover, in model 2 and 3 there is a negative relation between CEO and chairman duality and firm value in state-owned firms relative to non-state-owned firms. However, the negative effect is only significant in model 3 (at the level of 5 %). This can be explained by the lower CEO and chairman duality ratio in Chinese firms compared to other countries. Moreover, the problem of CEO and chairman duality is less severe in China than in the US or other countries (Jiang and Kim 2015).[3] Lastly, there is a significantly positive effect in the sensitivity of the relation between managerial pay and firm value in state-owned firms relative to non-state-owned firms. It suggests that Chines state-owned firms are more efficient in compensating managers than non-state-owned firms.

In general, the results in table 6 suggest that state ownership improves the sensitivity of the relation between corporate governance and firm value. However, state ownership does not improve the sensitivity of the relation between board independence and firm value whereas board independence as such does improve firm value.

Table 7 presents the results of FGLS regression models concerning cross-listing also based on equation (1). Market to book ratio is the dependent variable in all three models. The three models are designed the same way as for table 6. The control variable firm size (log (total asset) or log (total revenue)) are significantly related to firm value. The asset growth and leverage are found to have no significant effect on firm value in the regression models.

[3] Jiang and Kim (2015) also point out that CEO and chairman duality might be underestimated. In Chinese firms, the title of the firm's top manager is normally general manager, but lately some firms started to use the title CEO to donate the top manager. However, the general manager is much more common. So it is also possible that the data sample in this paper only shows the strict CEO and chairman duality but does not include the general manager and chairman duality although in fact both mean the same.

	Model 1	Model 2	Model 3
Independent variables	**Dependent variable: Market to book ratio**		
Firm is cross-listed	-0.818 (-2.02)*	-0.528 (-1.35)	-1.059 (-2.53)*
Cross * board size	0.056 (2.99)**	0.050 (2.84)**	0.058 (3.30)***
Cross * board independence	-0.889 (-1.02)	-0.768 (-0.89)	0.251 (0.27)
Cross * CEO = chairman	0.109 (0.87)	-0.061 (-0.66)	-0.002 (-0.02)
Cross * managerial pay	0.274 (4.21)***	0.301 (4.87)***	0.305 (4.94)***
Board size	-0.079 (-4.37)***	-0.033 (-2.07)*	-0.048 (-2.94)**
Board independence	0.398 (0.47)	1.584 (1.88)$^{(*)}$	0.364 (0.40)
CEO = chairman	0.025 (0.24)	0.135 (2.13)*	0.161 (2.42)*
Managerial pay (million yuan)	-0.255 (-4.16)***	-0.188 (-3.37)***	-0.221 (-3.87)***
Log (total asset)		-0.150 (-12.29)***	
Leverage		-0.013 (-1.46)	-0.014 (-1.58)
Asset growth		0.085 (1.25)	0.040 (0.54)
Log (total revenue)			-0.100 (-10.63)***
Constant	2.290 (5.88)***	2.641 (6.88)***	2.751 (6.74)***
N	615	522	521
Note: $^{(*)}$ *p <.10, * p <.05, ** p <.01, *** p <.001,* z statistics are presented in parentheses. In FGLS regression models STATA automatically drops the groups of observations that only have one observation in the group.			

Table 7: Sensitivity of the Relation between Corporate Governance and Firm Value Affected by Cross-listing

In all three models, cross-listing itself has a negative effect on firm value, although it is statistically insignificant in model 2. In cross-listed firms the sensitivity of the relation between board size and firm value is significantly positive relative to domestically-listed firms. The result indicates that cross-listed firms need larger boards to advice and monitor the management. Cross-listing does not improve the sensitivity of the relation between board independence and firm value, possibly because independence in Chinese firms is mainly the outcome of regulations and some main stock exchanges around the world relieve the corporate governance requirements for foreign issuers. Besides, no significant difference can be found in the sensitivity of the relation of CEO and chairman duality ratio and firm value for cross-listed firms relative to domestically-listed firms. Lastly, the sensitivity of the relation between managerial pay and firm value is significantly higher (at the level of 0.1 %) for the sample of cross-listed firms relative to domestically-listed firms. It suggests that managers in cross-listed firms are more efficiently paid than in domestically-listed firms.

6. Conclusion

This paper analysed the relationship of corporate governance, state ownership and cross-listing by using data of 2,113 Chinese A-share listed firms during the period 2008-2013. First-

ly, the board size and managerial pay are significantly larger while the board independence and the CEO and chairman duality ratio are significantly lower in state-owned firms than in non-state-owned firms. Secondly, board size is larger and the board is more independent in cross-listed Chinese firms than in domestically-listed firms. Moreover, the CEO and chairman duality ratio is significantly lower in cross-listed firms than in domestically-listed firms whereas the managers in cross-listed firms get a higher compensation than in domestically-listed firms. Thirdly, board size and managerial compensation have significantly positive additional effects on firm value in state-owned firms compared to non-state-owned firms whereas the CEO and chairman duality has a negative effect and there is no extra effect for board independence. Fourthly, firm value is improved with board size and managerial pay in cross-listed firms. However, cross-listing has no effect on the relation between board independence as well as CEO and chairman duality and firm value.

The empirical results in this paper may help to change the traditional understanding of corporate governance in Chinese listed firms. Firstly, many regulatory changes in China's corporate governance have taken place. This paper uses recent data to include new developments of corporate governance in China. Secondly, former literature on Chinese corporate governance only focused on the direct relation between corporate governance and firm value. However, this paper also discusses whether firm specific contexts, such as state ownership and cross-listing, influence corporate governance and further affect the sensitivity of the relation between corporate governance and firm value.

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