THE EFFECTS OF A SHIFT IN CHINA'S
CORPORATE GOVERNANCE REGIME ON FIRM
PERFORMANCE: AN ANALYSIS BY ECONOMIC
REGIONS

by

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Abstract

The objective of this paper is two-fold: (1) to examine whether the shift in China's corporate governance regime is positively affecting publicly listed Chinese firm performance; (2) to compare the effect of the shift in China's corporate governance in the eastern, central and western regions, three areas that are very different in their level of economic development. The reason that we select 2001-2005 as our sample period is that in 2002-2003 The Code of Corporate Governance for Listed Companies in China was formally introduced and mandated. In an attempt to detect distinctive behavioural firm performance patterns of firms in the three geographical regions in the context of corporate governance factors, we divide the sample period into three sub-periods: 2001: the pre-Code period; 2002-2003: the corporate governance regime shift period; 2004-2005: the post-Code period. We provide evidence that an improvement in China's corporate governance regime positively affects publicly listed Chinese firms' performance and, further, has a relatively greater impact on firm performance in the least economically developed western region.

Keywords: Corporate governance; board of directors; supervisory board; related-party disclosure; China.

Research field: Accounting and corporate governance.

1. INTRODUCTION

In January 2002, China Securities Regulatory Commission (CSRC) and the State Economic and Trade Commission (SETC) issued *The Code of Corporate Governance for Listed Companies in China* (*The Code*). *The Code* is applicable to all listed companies in China, and is the major measuring standard for evaluating whether a listed company has good corporate governance or not. All listed companies are required to act in the spirit of *The Code* in their efforts to improve corporate governance. With the objective of eliminating the dominant managerial power of the board of directors in China's listed companies, the CSRC also issued *The Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies* (*The Independent Directors Guidelines*) in August 2001, mandating that by 30 June 2003, at least one-third of board members shall be independent directors.

The objective of this paper is two-fold: (1) to examine whether the shift in China's corporate governance regime is positively affecting publicly listed Chinese firm performance; (2) to examines whether the shift in China's corporate governance regime induced higher firm performance in backward Chinese economic regions relative to firms in more developed economic regions.

Since the third meeting of the 11th Committee of the Communist Party of China (CPC) in December 1978, the People's Republic of China (PRC) began to adopt an "open" economic policy towards the outside world actively and to reform its economy from a centrally-planned economy to a market-oriented economy system. As a result, the Chinese economy presented an extremely rapid economic growth pace over the last three decades. This growth suffered from a large disparity in economic development among China's three main economic regions: the eastern region, central region and western region. Generally speaking, the eastern region has the most developed economy, the western region lagged behind severely, and the

development level of the central region is in-between. Recognizing this problem, the Chinese Government promoted a revision in its set of directions and policies regarding regional economic development and encouraged the development of the relatively backward western region of the PRC. This revision led to the birth of China's Great Western Development Strategy (GWDS) by the Leadership Group for Western China Development of the State Council in January 2000, directed by the former Chinese Premier Zhu Rongji. Consistent with this geographically economic disparity, most publicly listed companies are located in the developed economic region, such as the Eastern Coast area, and attract large volume of investment.

To examine the effect of shift in China's corporate governance regime on firm performance in general and in the context of the disparity in regional economic development, we select 2001-2005 as our sample period for two reasons. First, the GWDS was introduced in January 2000. Second, in 2002 – 2003 *The Code* was formally introduced and mandated. In an attempt to detect distinctive behavioural firm performance patterns among western, eastern and central regions' firms in the context of corporate governance factors, we divide the sample period into three sub-periods: 2001: *the* pre- *Code* period; 2002-2003: corporate governance regime shift period; 2004-2005: *the* post- *code* period. In total, our sample comprises 6,223 Chinese firm-year observations. We find evidence that an improvement in China's corporate governance regime positively affects publicly listed Chinese firms' performance and further, have a relatively greater impact on firm performance in the backward western economic region.

The results may enhance policymakers' and corporate players' understanding of the impact of effective corporate governance mechanisms on firm performance in China. These outcomes may be equally applicable to other developing economies such as Vietnam, Thailand, Malaysia and Indonesia, which encounter similar regional economic disparities as well as pitfalls in their respective corporate governance mechanisms.

The remainder of the paper is organized as follows. In Section 2, we provide institutional background. Section 3 discusses prior research and our hypotheses. In Section 4 we present the research design and in Section 5 we analyse the results. Section 6 provides a conclusion.

2. INSTITUTIONAL BACKGROUND

China's Inter-regional economic Disparity and the Great Western Development Strategy (GWDS)

Over two decades since 1978, the PRC has gradually opened its economy to market-based commerce and foreign investment. Most of the successful stories of rapid economic development took place in eastern China, particularly the coastal provinces, resulting in a rapid rise in living standards. In contrast, the rest of the country and in particular the western region, encountered severe economic problems, towards the end of the 20th century, caused by the early Chinese economic reform policies. Phanishsarn (2006) submits five such major economic problems. (1) Widening the inter-regional economic disparity may create social unrest due to widening income gap between the eastern and western economic regions; (2) due to poor infrastructure and lower level technological advancement, the western provinces are less attractive for foreign direct investment (FDI) whereas the east coast provinces enjoy a much higher level of FDI as well as domestic investment enabling them to develop a more international-oriented business management style. (3) The decentralization of economic authority from the central government to provincial governments resulted in competition among the local governments especially in the western economic region of China, leading to disputes and protectionism among some provinces. (4) Conflict of interests were created between the central and provincial governments in carrying out the national policy. The decentralization endowed with the provincial governments not only considerable authority for budget and other fiscal matters but also the authority for establishing their own special

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economic areas. However, since national-level policy and macro-level measures of the central government, such as control of inflation, were unfavourable for the provinces, it became difficult for the central government to ensure its policies and directives were carried out efficiently at the provincial level. (5) Due to the numerous privileges and incentives offered mainly to foreign enterprises by the central government in the early stages of economic reform, in order to attract FDI quickly, dissatisfaction among Chinese entrepreneurs mounted. This dissatisfaction resulted in demand for equal rights.

The large economic disparity between the coastal provinces and China's inland with poor infrastructure, a much rural population, and firmly entrenched government interests meant that the economic liberalization policies created by the central government did not benefit the residents of China's interior provinces (Gelb & Chen 2004). The inland provinces cover 56 percent of the country's land area and hold 23 percent of its population, but their per capita gross domestic product (GDP) is only 60 percent of the national average. In an effort to close this economic gap and improve the living standard of the 367 million Chinese residents, the central government launched the Great Western Development Strategy (GWDS) in January 2000 to attract and allocate funds and other resources for the development of China's poorer and historically more neglected western region. As shown in Figure 1, this entire region covered in the GWDS includes six provinces–Gansu, Guizhou, Qinghai, Shaanxi, Sichuan and Yunnan, five autonomous regions– Inner Mongolia, Ningxia, Xinjiang, Tibet and Guangxi, and one province-level municipality–Chongqing. The goals of the GWDS are summarised by Phanishsam (2006): (1) applying economic reform policy across China and opening its inland to the outside world; (2) stimulating regional economic development by attracting diversified businesses; (3) improving the investment environment and expending FDI in existing and other new sectors; (4) reforming the relatively backward administration and management of local governments; (5) emphasizing the importance of development in

terms of science, technology and education and attracting local intellects and well-know

elitists to assist the development of the western economic region.

　　With the objective to achieve the goals of GWDS we believe that enhanced positive

performance of listed companies located in the western economic region is a crucial indicator.

It will demonstrate an improvement in the regional investment environment and enhance

investors' confidence in general and that of foreign investors in particular. An important

element in investors' confidence in listed firms' potential performance is the corporate

governance environment. We thus conjecture that an improvement in China's corporate

governance regime will positively affect publicly listed Chinese firms' performance and

further, will have a relatively greater impact on firm performance in the backward western

economic region.

<div align="center">INSERT FIGURE 1 HERE</div>

China's Corporate Governance Development

The high concentration of state ownership is a major problem in shareholding restructuring

for most SOEs in China, as non-state investors usually have only a limited shareholding in

them. Consequently, monitoring of the performance of SOEs by non-state shareholders has

not improved as much as was initially expected under the process of economic reform. Hence,

the accountability issue of management remains unresolved and progress in corporate reform

is slow (Yu, Zhang & Qi 2005). The aim of the Chinese government was to establish a

socialist market-oriented economy, prior to becoming part of the WTO, in order to improve

and protect shareholders' rights, insulate companies' boards from inappropriate influences,

and reduce information asymmetry. Thus, corporate governance became a pressing issue to

enhance Chinese enterprises' competitive advantage and to eliminate unacceptable practices

(Shan & Round 2009). Although more than 300 laws and directives concerning the securities

and futures markets have been issued since the establishment of the Chinese Securities Regulatory Committee (CSRC) in 1992, in practice the state still owns large shareholdings in many companies, minority shareholders' rights are sometimes ignored and Chinese companies are liable to have influence exerted over them from a number of different sources. With the objectives of developing a prosperous socialist market-oriented economy and attracting more foreign institutional investors, the government realised that there is a need to create a corporate governance system that protects minority shareholders' rights and encourages confidence in the corporate structure and operations, and that companies need to provide accurate and timely information (Mallin 2007).

In China, corporate governance developments involve a number of regulatory bodies, including the CSRC, the Ministry of Finance (MOF), the State Economic and Trade Commission (SETC) and the People's Bank of China (PBOC), which is essentially the Central Bank of China. The key legal framework for corporate governance in China consists of *The Company Law* promulgated in December 1993 and revised in 2005, *The Securities Law* promulgated in December 1998 and revised in 2005, and *The Code of Corporate Governance for Listed Companies in China* (*The Code*) issued by the CSRC and the SETC in January 2002.

3. LITERATURE AND HYPOTHESES DEVELOPMENT

Regulatory Improvement and firm Performance

This study's primary concern is the impact of listed Chinese firms' performance due to regulatory improvement pre-, during- and post- of *The Code* introduction in January 2002, and its relative directives. There are numbers of prior studies available in the literature regarding regulatory enforcement/response in China (Bao & Chow 1999; Haw, In-Mu, Qi & Wu 1999; Chen, CJP, Chen & Su 2001; Haw, In-Mu , Qi & Wu 2001; Sami & Zhou 2004;

Haw, In-Mu et al. 2005; Lin & Chen 2005; Kao, Wu & Yang 2009; Chen, JJ & Zhang 2010; Cheng, Aerts & Jorissen 2010), and most of them focus on either value relevance or earnings management. In terms of value relevance, for example, Haw et. al. (2001) compare the value relevance of net income and cash flow in China. They find that Chinese investors rely on earnings information more than cash flow information and suggest that earnings information based on Chinese Generally Accepted Accounting Principles (GAAP) are value-relevant for Chinese investors despite inadequate capital market systems, poor financial and auditing reporting, and limited access to specific information about listed firms. Chen et al. (2001) argue that accounting information on balance sheets and income statements are value relevant to domestic Chinese investors in the Chinese stock market. However, domestic investors perceive A-share firms as more value relevant than those firms with both A- and B-shares even though the latter comply with both International Accounting Standard (IAS) and Chinese Accounting Standard (CAS), and disclose more information than required by regulations. Lin and Chen (2005) examine the incremental value-relevance of accounting information for firms that constantly issued both A- and B-shares during 199 –2000. Their results suggest that CAS earnings are correlated with returns and prices of A- and B-shares. However, IAS reconciliation of earnings does not provide any material information benefits for either market, possibly because of the immature capital market environment. Sami and Zhou (2004) investigate the comparative value relevance of A- and B-shares during 1994–2000. They conclude that accounting information based on IAS is more value relevant than that based on CAS.

In terms of earnings management, for example, Haw et al. (2005) examine whether Chinese listed companies manage earnings to meet regulatory benchmarks and whether regulators and investors consider the quality of earnings in their respective regulatory and investment decisions because under the 1996-98 security regulations in China, the ROE has to

be greater than 10 per cent for three consecutive years for a company to be qualified for public listing. Their finding suggests that the applicants (companies) manage earnings upward and also imply that the regulatory bodies and investors to some extent make rational adjustments for the quality of earnings. Kao et al. (2009) examine whether government regulatory initiatives in China involving IPO by SOEs may have contributed to opportunistic behaviours by the issuer. Their finding suggests that IPO firms that report better pricing-period accounting performance have larger declines in post-IPO profitability. Cheng et al. examine the effect of an earnings-based listing regulation on corporate financial reporting management because China revised its listing standards in 2001. Their result shows that firms approaching the delisting procedure use more earnings management.

From above analyses we believe that there is a gap in literature regarding the impact of regulatory improvement and firm performance upon the introduction of *The Code*. As the primary government document dealing with corporate governance, *The Code* is a set of guidelines that states in its Preface that all listed companies in China are to "act the spirit of *The Code* in efforts to improve corporate governance". It is intended as a standard against which companies and their investors can evaluate whether or not good corporate governance is in place. (Ho & Wong 2001) describe the view of corporate governance as a mechanism to delineate each group of stakeholders' rights and responsibilities, with transparency being important but problematic to its effective functioning. (Dennis & McConnell 2003) articulate the Anglo-American view of corporate governance as a set of mechanisms, both institutional and market-based, that induce the self-interested controllers of a firm to make decisions that maximise the value of the firm to its owners. Both views of corporate governance represent ways to manage the agency problems arising when professional managers or stakeholders are delegated control (Jensen & Meckling 1976; Fama & Jensen 1983). Shareholders' interests, especially minority shareholders' interests together with other stakeholders' interests, are

deemed to be better met, it is deemed, under a good corporate governance system. Accordingly, our first testable hypothesis is proposed:

Hypothesis 1: The shift in China's corporate governance regime is positively affecting publicly listed Chinese firm performance.

Impact of Regulatory Improvement in Different Economic Regions

This study further concerns the impact of firm performance of listed companies in different economic regions in response to regulatory improvement. Prior studies of firm performance and governance in China have less consideration in terms of geographical location and performance comparison (Xu & Wang 1999; Hovey, Li & Naughton 2003; Sun & Tong 2003; Chen, G, Firth & Rui 2006; Firth, Fung & Rui 2006; Firth, Fung & Rui 2007; Wei 2007; Zuo & Adams 2008). For example, using pooled firm-level data from 1993 to 1995, Xu and Wang (1999) investigate whether ownership structure significantly affects the performance of companies in the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE); Hovey, Li and Naughton (2003) investigate the relationship between firm performance and corporate governance. The data they used was randomly selected from firms listed on SHSE and SZSE between 1997 and 1999; Sun and Tong (2003) investigate the performance changes of 634 state-owned enterprises (SOEs) listed on SHSE and SZSE in the period 1994–1998; Chen, Firth and Rui (2006) examine the operating performance of 1078 privatized firms during the period 1991 to 2000; Wei (2007) tests the relationship between non-state-owned shareholding and a firm's performance by using a sample 276 listed firms from 1999 to 2002. In summary, these studies only focus on the characteristics of ownership structure of Chinese listed companies without consideration in terms of management incentives that are affected by regional economic and political issues. Our innovation is to integrate the national-level regulatory improvement (*The Code*) and regional-focused strategy

(GWDS) and measure firm performance by introducing dominant factors of Chinese corporate governance system.

The modern principle of agency theory suggests that contracts entered into by an agent are regarded as being entered into by the principal, provided the contract is within the scope of the agent's authority (Jensen & Meckling 1976). A principal–agent problem arises when there is imperfect information about what action the agent has undertaken or should undertake. This leads to controlling parties to business transaction having an information advantage over others and results in information asymmetry (Fama & Jensen 1983). The GWDS provide a backbone of economic reform strategy at regional level of the western China in terms of investment, fiscal and opening-up policies. For example, decision-making power was decentralised and given to local governments in some projects attracting FDI; reform of the fiscal system led to better advantages than other economic regions, such as including offering foreign investor special fiscal incentives. Theoretically, the managers in western listed companies will have higher incentives to operate their businesses within a better corporate governance mechanism than other managers to reduce information asymmetry and attract FDI (Ferguson, Lam & Lee 2002; Wang, Sewon & Claiborne 2008). Accordingly, our second testable hypothesis is proposed:

Hypothesis 2: The shift in China's corporate governance regime has relatively higher impact on firm performance in backward economic regions.

4. RESEARCH DESIGN

Data and Sample

The analysis is based on the information from listed companies over a five-year period from 2001 to 2005. In consideration with regulatory improvement of *The Code*, we split the five-year duration into three regulatory periods: pre-regulatory improvement (PRE) period (2001);

regulatory changing (RC) period (2002-2003); post-regulatory improvement (POST) period (2004-2005). Data are collected from two CSMAR databases by the Shenzhen Guotaian Information Technology Corporation (GTA): China Stock Market Finance Database and China Stock Market Corporate Governance Database. We exclude companies in the financial sector because of their special regulatory environment. As shown in Table 1, the western region consists of 237, 497 and 541 observations for PRE, RC and POST periods respectively; the central region consists of 239, 530 and 558 respectively; the eastern region consists of 647, 1,399 and 1,545 respectively. In total, our sample comprises 6,223 Chinese firm-year observations.

<center>INSERT TABLE 1 HERE</center>

Model and Variables

According to the hypotheses, the panel multivariate regression model to be empirically investigated in this study is as follows:

$$ROA_{i,t} = \alpha + \beta_1 STATE_{i,t} + \beta_2 LEGAL_{i,t} + \beta_3 FOREIGN_{i,t} + \beta_4 EMPLOYEE_{i,t} + \beta_5 BSIZE_{i,t} + \beta_6 INDP_{i,t} \quad (1)$$
$$+ \beta_7 SBSIZE_{i,t} + \beta_8 BDMEET_{i,t} + \beta_9 SBMEET_{i,t} + \beta_{10} SHMEET_{i,t} + \beta_{11} CONTROL_{i,t} + \varepsilon_{i,t}$$

Where for company i in a given region in fiscal year t:

ROA (the dependent variable) = return on assets;

STATE = proportion of shares held by the state;

LEGAL = proportion of shares held by legal person;

FOREIGN = proportion of shares held by foreign shareholders;

EMPLOYEE = proportion of shares held by employees of the firm;

BSIZE = board size, the number of directors on the corporate board;

INDP = number of independent directors on the corporate board;

SBSIZE = number of members on the supervisory board;

BDMEET = number of meetings of the corporate board in the fiscal year;

SBMEET = number of meetings of the supervisory board in the fiscal year;

SHMEET = number of shareholders' meetings in the fiscal year;

CONTROL = control variable, the natural logarithm of the firm's number of employees of at the end of fiscal year;

5. RESULTS

Univariate Analysis

Table 2 presents mean, median and standard deviation for each variable included in regression model (1). Each statistic is calculated separately for each of the three economic regions (Western (W), Central (C) and Eastern (E)) in three sub-periods: 2001: the pre- *Code* period; 2002-2003: corporate governance regime shift period; 2004-2005: the post- *code* period. The last two sets of columns present for each pair of economic regions, in each sub-period, t-values and the statistical significance level of the difference between two means, and Wilcoxon–Mann Whitney z-statistic to examine the statistical significance level of difference between two medians, respectively. Our main comparison is among three distinctive economic regions with a large disparity in economic development: the eastern region – economically most developed; the central region; and the western region – economically most backward region. We focus our analysis on comparison between the pre- and post- *code* period.

Based on the non-parametric Wilcoxon–Mann Whitney z-statistics that examine the statistical significance level of difference between two medians, the results presented in Table 2 demonstrate no apparent pattern for most variables. In the post- *code* period, the dependent variable, return on assets (ROA), is significantly larger for the Eastern region compared with either the Western or Central regions. No significant differences are observed

between the Central and the Western regions. In the pre- *code* period, there are no statistically significant differences between any pair of regions. In both the pre- and post- *code* periods, the proportion of shares held by the state (STATE) is significantly smaller for the Eastern region compared with either the Western or Central regions. No significant differences are observed between the Central and the Western regions. In both the pre- and post- *code* periods, the proportion of shares held by legal person (LEGAL) is not significantly different for the Western region compared with either the Eastern or Central regions. A comparison between the Eastern and Central regions indicates a significant larger LEGAL for the Eastern region in the post- *code* period, but none in the pre- *code* period. In both the pre- and post- *code* periods, the proportion of shares held by foreign shareholders (FOREIGN) is significantly larger for the Western region compared with either the Eastern or Central regions. No significant differences are observed between the Central and Western regions in the pre- *code* period, while in the post- *code* period, FOREIGN is significantly larger for the Central region compared with the Western region. For both the proportion of shares held by employees of the firm (EMPLOYEE), and for board size, the number of directors on the corporate board (BSIZE), no significant differences are observed for any pair of regions in either the pre- or post- *code* periods. In both the pre- and post- *code* periods, the number of independent directors on the corporate board (INDP) is significantly larger for the Eastern region compared with the Western region. Also, INDP is significantly larger for the Eastern region compared with the Central region in the pre- but not in the post- *code* period. No significant differences are observed between the Central and the Western regions in either the pre- or post- *code* period. In both pre- and post- *code* periods, the number of members on the supervisory board (SBSIZE) is significantly smaller for the Eastern region compared with either Western region or Central region. But, between the Central and the Western regions no significant differences are observed in either pre- or post- *code* period. In both pre- and post-

code periods, the number of meetings of the corporate board in the fiscal year (BDMEET) is not significantly different for the Western region compared with either Eastern or Central regions. A comparison between the Eastern and Central regions indicates a significant larger BDMEET for the Eastern region in the post- *code* period, but none in the pre- *code* period. The number of meetings of the supervisory board in the fiscal year (SBMEET) is significantly smaller for the Central region compared with both Western and Eastern regions in the post- but not in pre- *code* period. No significant differences are observed between the Eastern and the Western regions in either pre- or post- *code* period. In both the pre- and post- *code* periods, the number of shareholders meeting in the fiscal year (SHMEET) is not significantly different for the Western region compared with either the Eastern or Central regions. A comparison between the Eastern and Central regions indicates a significant larger SHMEET for the Central region in the pre- *code* period, but none in the post- *code* period. Finally, the size control variable (CONTROL: the natural logarithm of the firm's number of employees as of the end of the fiscal year) is significantly smaller in both pre- and post- *code* periods, for the Eastern region compared with either Western region or Central region. But, between the Eastern and Western regions no significant differences are observed in either pre- or post- *code* period.

INSERT TABLE 2 HERE

Multivariate Analysis

Ordinary least squares (OLS) cross-section fixed effects methods are used in this study. The Hausman test for a comparison between the random effects estimator and the fixed effects estimator was used. The test generates a Chi-square statistic with degrees of freedom and probability (*p*-value). It is found that the *p*-value is less than 0.05, and thus the null

hypothesis was rejected, which means that the fixed effects estimator should be used. The redundant fixed effects test provides a Chi-square statistic for cross-section and time-series effects. The results indicate that a cross-section fixed effects model should be used.

The possible presence of multicollinearity is also tested for. (Gujarati 2003) argues that correlations between independent variables should not be deemed harmful for multivariate analysis unless they exceed 0.8. As shown in Table 3 Panel A, there are no correlations between independent variables that are even close to this level. However, a certain degree of multicollinearity can still exist even when none of the bivariate correlation coefficients is very large. The reason is that one independent variable may be a linear function of a set of some of the independent variables (Gujarati, 2003). [1] Hence, multicollinearity is tested for using the Variance Inflation Factor (VIF). The results, reported in Table 3 Panel B, show that the largest VIF is 2.26 and that the VIFs of all other independent variables are 2.15 or less. Thus, there is no serious multicollinearity problem present in the regression models.

INSERT TABLE 3 HERE

The results for the panel multivariate regression model (1) are presented in Tables 4 and 5. Table 4 presents results using unbalanced panel multivariate regression whereas Table 5 presents, as robustness check, results using balanced panel multivariate regression. The panel data set is unbalanced because some sample companies were listed between 2002 and 2005, whereas the panel data set is balanced because the companies listed between 2002 and 2005 were removed, and only remain the companies listed since 2001 or early. In what

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[1] The critical value of the VIF to test for multicollinearity is 10. Gujarati (2003) suggests that there is no evidence of multicollinearity unless the VIF of a variable exceeds 10. All values calculated in this study were well below this critical level.

follows, the analysis focuses on the results presented in Table 4. The results presented in Table 5 are similar in nature.

Panel A of Table 4 presents estimated regression coefficients of regression model (1) in three distinctive comparisons: (a) by three separate economic regions and three separate regulatory–change periods; (b) by combined three economic regions and three regulatory–change periods; (c) by combined three regulatory–change periods and separate three economic regions. Panel B of Table 4 presents White's (1980) t-statistics, adjusted for heteroskedasticity, that estimate the significance level of the differences in each pair of estimated coefficients by regulatory–change period, reported in Panel A, per region: RC *vs.* PRE, POST *vs.* PRE, RC *vs.* POST; and then for the differences in each pair of estimated coefficients by economic region, reported in Panel A per regulatory–change period: Eastern *vs.* Western, Eastern *vs.* Central, Central *vs.* Western.

INSERT TABLES 4 AND 5 HERE

To examine hypothesis 1 that the shift in China's corporate governance regime is positively affecting publicly listed Chinese firm performance, we compare the magnitude of the estimated coefficients for the corporate governance variables (BSIZE, INDP, SBSIZE, BDMEET, SBMEET, SHMEET) between the post-regulatory improvement (POST) period (2004-2005) and the pre-regulatory improvement (PRE) period (2001), for all three regions combined. For this purpose we use the White's (1980) t-statistics, adjusted for heteroskedasticity, that estimate the significance level of the differences in each pair of estimated coefficients by regulatory–change period. AS shown in the middle of Table 4, Panel B, the results provide support to hypothesis 1. Particularly, we observe a statistically significant increase in the estimated coefficients for: INDP, the number of independent

directors on the corporate board (t = 1.96, $p < 0.05$); SBSIZE, the number of members on the supervisory board (t = 11.91, $p < 0.001$); BDMEET, the number of meetings of the corporate board in the fiscal year (t = 13.03, $p < 0.001$); SBMEET, the number of meetings of the supervisory board in the fiscal year (13.36, $p < 0.001$). Only for two explanatory variables, BSIZE (board size, the number of directors on the corporate board) and SHMEET (number of shareholders' meetings in the fiscal year), the respective t-statistics indicate no significant differences in each pair of estimated coefficients by regulatory–change period. Similar results are obtained, in general, when we compare the magnitude of the estimated coefficients for the corporate governance variables (BSIZE, INDP, SBSIZE, BDMEET, SBMEET, SHMEET) between the post-regulatory improvement (POST) period (2004-2005) and the pre-regulatory improvement (PRE) period (2001), separately, for each of three regions.

To examine hypothesis 2 that the shift in China's corporate governance regime has relatively higher impact on firm performance in backward economic regions, we compare the magnitude of the estimated coefficients for the corporate governance variables (BSIZE, INDP, SBSIZE, BDMEET, SBMEET, SHMEET) between the Western (backward) and the Eastern (developed) economic regions in the post-regulatory improvement (POST) period (2004-2005) versus the pre-regulatory improvement (PRE) period (2001). For this purpose we use the White's (1980) t-statistics, adjusted for heteroskedasticity, that estimate the significance level of the differences in each pair of estimated coefficients: (Eastern − Western) in the PRE regulatory–change period with the respective difference in the POST regulatory–change period. AS shown in the bottom half of Table 4, Panel B, the results provide partial support to hypothesis 2. In the PRE regulatory–change period, the differences in each pair of estimated coefficients: (Eastern − Western) is not significantly different from zero. In contrast, in the POST regulatory–change period we observe statistically significant larger estimated coefficients for the backward Western economic region, for INDP, the number of

independent directors on the corporate board (t = -7.63, $p < 0.001$); SBSIZE, the number of members on the supervisory board (t = -1.81, $p < 0.10$); and SBMEET, the number of meetings of the corporate board in the fiscal year (t = -3.00, $p < 0.01$), while the opposite (i.e., larger estimated coefficients for the developed eastern region) is observed for BSIZE (t = 4.44, $p < 0.001$) and BDMEET - the number of meetings of the corporate board in the fiscal year (t = 2.57, $p < 0.05$). Only for SHMEET (number of shareholders' meetings in the fiscal year), the difference is not statistically different from zero (t = -0.64). These results provide evidence that an improvement in China's corporate governance regime positively affects publicly listed Chinese firms' performance and further, have a relatively greater impact on firm performance in the backward western economic region.

6. CONCLUSION

In this paper we examines whether the shift in China's corporate governance regime is positively affecting publicly listed Chinese firm performance, and whether the shift in China's corporate governance regime induced higher firm performance in backward Chinese economic regions relative to firms in more developed economic regions. We select 2001-2005 as our sample period for the reason that in 2002 – 2003 *The Code of Corporate Governance for Listed Companies in China* was formally introduced and mandated. In an attempt to detect distinctive behavioural firm performance patterns among western, eastern and central regions' firms in the context of corporate governance factors, we divide the sample period into three sub-periods: 2001: *the* pre- *Code* period; 2002-2003: corporate governance regime shift period; 2004-2005: *the* post- *code* period. Our sample comprises 6,223 Chinese firm-year observations. We find evidence that an improvement in China's corporate governance regime positively affects publicly listed Chinese firms' performance and further,

have a relatively greater impact on firm performance in the backward western economic region.

The results may enhance policymakers' and corporate players' understanding of the impact of effective corporate governance mechanisms on firm performance in China. These outcomes may be equally applicable to other developing economies such as Vietnam, Thailand, Malaysia and Indonesia, which encounter similar regional economic disparities as well as pitfalls in their respective corporate governance mechanisms.

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Figure 1: Map of PRC

<u>Table 1</u>: Distribution of Chinese firm-year observations by economic region and regulatory period

Economic region	PRE 2001	RC 2002-2003	POST 2004-2005	Total
Western	237	497	541	1,275
Central	239	530	588	1,357
Eastern	647	1,399	1,545	3,591
Total	1,123	2,426	2,674	6,223

Table 2: Univariate Analysis

Variable	PRE (2001)			RC (2002-03)			POST (2004-05)				Mean–Comparison Test [a]			Wilcoxon–Mann Whitney Test [b]		
	Mean	Med	SD	Mean	Med	SD	Mean	Med	SD		PRE	RC	POST	PRE	RC	POST
ROA																
(Western)	0.019	0.029	0.069	0.006	0.024	0.140	0.002	0.020	0.132	E-W	-2.14^{*}	0.26	2.09^{*}	0.06	2.49^{*}	4.10^{***}
(Central)	0.025	0.036	0.064	0.015	0.029	0.100	-0.018	0.025	0.402	C-W	1.00	1.25	-1.10	1.66†	1.50	1.54
(Eastern)	-0.012	0.029	0.351	0.008	0.029	0.264	0.016	0.029	0.152	C-E	2.57^{*}	0.86	-1.98^{*}	1.72†	-0.81	-2.21^{*}
STATE																
(Western)	0.359	0.405	0.248	0.354	0.400	0.248	0.346	0.397	0.245	E-W	-2.17^{*}	-2.87^{**}	-3.43^{***}	-2.16^{*}	-2.94^{**}	-3.43^{***}
(Central)	0.375	0.410	0.261	0.377	0.428	0.260	0.367	0.407	0.256	C-W	0.67	1.45	1.39	0.84	1.57	1.56
(Eastern)	0.318	0.332	0.270	0.316	0.332	0.271	0.303	0.314	0.269	C-E	2.88^{**}	4.55^{***}	5.07^{***}	2.88^{**}	4.55^{***}	5.06^{***}
LEGAL																
(Western)	0.151	0.025	0.227	0.152	0.029	0.226	0.157	0.029	0.226	E-W	2.18^{*}	3.40^{***}	2.85^{**}	0.98	1.39	1.37
(Central)	0.156	0.013	0.229	0.154	0.013	0.230	0.149	0.013	0.221	C-W	0.25	0.16	-0.65	-0.52	-0.92	-1.64†
(Eastern)	0.189	0.034	0.246	0.194	0.036	0.249	0.190	0.041	0.239	C-E	-1.88†	-3.25^{**}	-3.78^{***}	-1.45	-2.28^{*}	-3.15^{**}
FOREIGN																
(Western)	0.004	0.000	0.029	0.004	0.000	0.034	0.005	0.000	0.039	E-W	3.38^{***}	4.64^{***}	4.82^{***}	2.70^{**}	4.64^{***}	5.22^{***}
(Central)	0.002	0.000	0.017	0.002	0.000	0.016	0.007	0.000	0.385	C-W	-0.91	-1.33	0.79	-0.03	0.48	2.17^{*}
(Eastern)	0.014	0.000	0.059	0.014	0.000	0.060	0.016	0.000	0.065	C-E	-4.68^{***}	-7.17^{***}	-4.17^{***}	-2.77^{**}	-4.46^{***}	-3.48^{***}
EMPLOYEE																
(Western)	0.002	0.000	0.013	0.002	0.000	0.012	0.001	0.000	0.011	E-W	3.46^{***}	1.46	1.13	0.65	-1.34	-0.67
(Central)	0.010	0.000	0.036	0.004	0.000	0.023	0.002	0.000	0.148	C-W	3.16^{**}	1.92†	0.84	1.18	-0.70	-0.59
(Eastern)	0.008	0.000	0.032	0.003	0.000	0.189	0.002	0.000	0.017	C-E	0.96	0.97	-0.08	0.77	0.47	-0.04
BSIZE																
(Western)	9.388	9.000	2.439	9.930	9.000	2.244	9.612	9.000	2.132	E-W	-0.54	-1.52	-0.73	-0.56	-1.49	-0.72
(Central)	9.452	9.000	2.478	9.964	9.000	2.440	9.737	9.000	2.277	C-W	0.28	0.24	0.95	0.47	0.22	0.70
(Eastern)	9.287	9.000	2.554	9.753	9.000	2.178	9.535	9.000	2.058	C-E	0.87	1.75†	1.88†	1.09	1.71†	1.58
INDP																
(Western)	0.523	0.000	1.015	2.712	3.000	0.933	3.222	3.000	0.834	E-W	2.00^{*}	1.44	2.19^{*}	2.26^{*}	1.55	2.07^{*}
(Central)	0.494	0.000	0.999	2.726	3.000	0.962	3.291	3.000	0.847	C-W	-0.32	0.24	1.38	-0.44	-0.28	1.03
(Eastern)	0.680	0.000	1.078	2.781	3.000	0.877	3.311	3.000	0.746	C-E	-2.41^{*}	-1.15	-0.50	-2.72^{**}	-1.91†	-0.75
SBSIZE																
(Western)	4.481	5.000	1.284	4.400	5.000	1.382	4.290	5.000	1.418	E-W	-2.76^{**}	-3.73^{***}	-3.17^{**}	-3.14^{**}	-4.20^{***}	-3.76^{***}
(Central)	4.464	5.000	1.419	4.432	5.000	1.464	4.316	5.000	1.492	C-W	-0.13	0.36	0.30	-0.38	0.21	0.14
(Eastern)	4.207	4.000	1.378	4.131	3.000	1.376	4.065	3.000	1.419	C-E	2.41^{*}	4.09^{***}	3.52^{***}	2.57^{*}	4.43^{***}	3.95^{***}

Variable	PRE (2001) Mean	Med	SD	RC (2002-03) Mean	Med	SD	POST (2004-05) Mean	Med	SD		Mean–Comparison Test [a] PRE	RC	POST	Wilcoxon–Mann Whitney Test [b] PRE	RC	POST
BDMEET																
(Western)	6.169	6.000	1.015	8.147	8.000	2.968	7.327	7.000	2.885	E-W	1.00	−0.11	2.08*	0.80	−1.10	1.65†
(Central)	5.954	6.000	2.407	7.434	7.000	2.645	6.912	6.000	2.412	C-W	−0.90	−4.05***	−2.61**	−0.43	−3.99***	−1.87†
(Eastern)	6.388	6.000	3.100	8.129	7.000	3.379	7.639	7.000	3.337	C-E	−2.20*	−4.75***	−5.57***	−1.36	−3.59***	−4.00***
SBMEET																
(Western)	3.527	3.000	1.463	3.976	4.000	1.824	3.259	3.000	1.653	E-W	−0.12	−0.39	−1.19	0.08	−0.56	−0.92
(Central)	3.410	3.000	1.438	3.625	3.000	1.635	2.993	3.000	1.464	C-W	−0.88	−3.24**	−2.85**	−0.85	−3.00**	−2.49*
(Eastern)	3.515	3.000	1.419	3.939	4.000	1.896	3.162	3.000	1.587	C-E	−0.96	−3.60***	−2.32*	−1.14	−3.14**	−2.13*
SHMEET																
(Western)	2.169	2.000	1.019	2.256	2.000	1.120	2.089	2.000	1.005	E-W	−1.48	−3.32***	−0.95	−1.94†	−3.48***	−1.33
(Central)	2.234	2.000	0.998	2.128	2.000	1.021	2.122	2.000	1.032	C-W	0.71	−1.90†	0.56	0.81	−1.72†	0.48
(Eastern)	2.053	2.000	1.079	2.064	2.000	1.053	2.041	2.000	1.037	C-E	2.36*	1.22	1.63	2.82**	1.49	1.92†
CONTROL																
(Western)	7.302	7.390	1.066	7.294	7.413	1.179	7.215	7.416	1.258	E-W	−1.60	−2.04*	−0.32	−1.07	−2.26*	−0.90
(Central)	7.524	7.570	1.011	7.512	7.541	1.138	7.450	7.535	1.186	C-W	2.33*	3.01**	3.91***	2.32*	2.46*	3.11**
(Eastern)	7.161	7.277	1.389	7.162	7.286	1.398	7.194	7.324	1.432	C-E	4.27***	5.65***	5.02***	3.55***	5.09***	4.63***

Notes:

[a] Mean–comparison test provide the *t*-value and the statistical significance level of difference between two means

[b] Wilcoxon–Mann Whitney test (*z*-statistic) is used to examine the statistical significance level of difference between two medians

† if $p < 0.10$; * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$ (two-tailed *p*-values are used in determining significance)

Table 3: Multicollinearity diagnostics of regression equation (1)

Panel A: Spearman correlation coefficients matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) STATE	–												
(2) LEGAL	−0.722***	–											
(3) FOREIGN	−0.144***	0.034**											
(4) EMPLOYEE	−0.032*	−0.007	−0.025*	–									
(5) BSIZE	0.059***	−0.02	0.003	−0.013	–								
(6) INDP	0.000	0.000	0.027*	−0.07***	0.387***	–							
(7) SBSIZE	0.173***	−0.104***	−0.046***	−0.007	0.312***	0.079***	–						
(8) BDMEET	−0.046***	−0.023†	0.006	0.005	−0.049***	0.092***	−0.079***	–					
(9) SBMEET	0.025*	−0.041**	−0.035**	0.000	−0.01	−0.033**	0.031*	0.288***	–				
(10) SHMEET	−0.028*	0.041**	0.026*	0.016	0.031*	0.029*	−0.008	0.291***	0.197***	–			
(11) FSIZE	0.179***	−0.087***	−0.054***	0.007	0.193***	0.092***	0.18***	−0.082***	0.001	−0.038**	–		
(12) WEST	0.037**	−0.045***	−0.06***	−0.038**	0.011	−0.029*	0.051***	0.001	0.028*	0.035**	−0.001	–	
(13) CENTRAL	0.08***	−0.051***	−0.066***	0.026*	0.031*	−0.008	0.06***	−0.081***	−0.056***	0.024†	0.097***	−0.268***	–

Panel B: VIF diagnostic for multicollinearity

Variables	VIF	SQRT VIF	Tolerance	R^2
(1) STATE	2.26	1.50	0.4420	0.5580
(2) LEGAL	2.15	1.47	0.4655	0.5345
(3) FOREIGN	1.05	1.02	0.9554	0.0446
(4) EMPLOYEE	1.01	1.01	0.9880	0.0120
(5) BSIZE	1.33	1.15	0.7535	0.2465
(6) INDP	1.21	1.10	0.8255	0.1745
(7) SBSIZE	1.16	1.08	0.8598	0.1402
(8) BDMEET	1.21	1.10	0.8242	0.1758
(9) SBMEET	1.12	1.06	0.8913	0.1087
(10) SHMEET	1.13	1.06	0.8884	0.1116
(11) FSIZE	1.10	1.05	0.9104	0.0896
(12) WEST	1.10	1.05	0.9097	0.0903
(13) CENTRAL	1.12	1.06	0.8951	0.1049
Mean VIF	1.30			

Notes: Two-tailed *p*-values are used in determining significance: † if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.00$

Table 4: Unbalanced panel multivariate regression model (1). Comparative results (a) by economic region and regulatory–change period; b) by combined three economic regions and regulatory–change period; (c) by combined three regulatory–change periods and economic region[a, b, c]

Panel A: Estimated regression coefficients [d]

Region	STATE	LEGAL	FOREIGN	EMPLOYEE	BSIZE	INDP	SBSIZE	BDMEET	SBMEET	SHMEET	Adj. R^2	Sample/observation
Western												
(PRE)	0.029	−0.005	−0.025	0.312*	0.0005	0.0004	−0.002	−0.004†	−0.002	0.017**	0.038	270
(RC)	0.033	0.043†	−0.03†	0.561***	0.0006	0.0013	0.003	−0.006***	0.003***	0.007*	0.021	253/497
(POST)	0.137***	0.133***	0.061	0.402†	−0.005†	0.029***	0.006**	−0.011***	0.004***	0.012***	0.162	273/541
Central												
(PRE)	0.051*	0.042	0.101	0.22*	0.0005	0.0042	0.004	−0.005*	−0.002	0.007†	0.044	290
(RC)	0.099***	0.089***	0.229***	0.308***	0.003***	0.002†	−0.001	−0.002***	0.002	0.004	0.044	276/530
(POST)	0.181***	0.021	0.451***	0.212*	−0.02	0.098*	−0.008***	0.012***	0.012***	0.007*	0.03	298/588
Eastern												
(PRE)	0.033	0.03	−0.095	−1.335	−0.003	−0.001	−0.0001	−0.005	−0.018	0.006	0.05	784
(RC)	0.175***	0.175***	0.265***	0.454***	−0.001	0.022***	0.002	−0.008***	0.005**	0.001	0.036	722/1399
(POST)	0.072***	0.049*	0.054†	0.139***	0.006†	−0.003	0.002***	−0.002**	−0.002*	0.01***	0.037	782/1545
All Regions												
(PRE)	0.038	0.02	−0.115	−0.787	−0.0002	−0.002	−0.001	−0.005	−0.012	0.009†	0.038	1344
(RC)	0.126***	0.127***	0.2***	0.422***	0.0004	0.012***	0.002	−0.006***	0.004*	0.004***	0.03	1251/2426
(POST)	0.103***	0.062***	0.125***	0.214**	−0.007	0.04†	0.001***	−0.001***	0.002***	0.01***	0.028	1353/2674
All Periods												
(Eastern)	0.109***	0.095**	0.099†	−0.341	0.001	0.011***	0.001	−0.004**	0.001	0.007*	0.032	799/3591
(Central)	0.119***	0.041	0.396***	0.297**	0.006	−0.001	−0.002	0.003	0.008	0.007	0.014	301/1357
(Western)	0.074**	0.071**	0.008	0.474***	0.001	0.003	0.004†	−0.008***	0.004†	0.012***	0.056	275/1275

Panel B: t statistics for differences between estimated coefficients of regression equation (1): RC *vs.* PRE, POST *vs.* PRE, POST *vs.* RC [e]

Region	STATE	LEGAL	FOREIGN	EMPLOYEE	BSIZE	INDP	SBSIZE	BDMEET	SBMEET	SHMEET
Western										
(RC–PRE)	0.12	1.95*	–0.31	12.28***	0.01	0.19	2.14*	–0.86	8.06***	–2.79**
(POST–PRE)	6.63***	4.4***	1.52	0.41	–1.88†	3.94***	3.91***	–2.43**	5.44***	–1.87†
(POST–RC)	3.14**	3.57***	1.54	–0.72	–1.68†	3.18**	1.32	–1.75†	0.98	1.02
Central										
(RC–PRE)	1.96*	1.93†	2.28*	1.21	3.73***	–1.71†	–5.81***	5.89***	1.59	–1.41
(POST–PRE)	6.94***	–1.26	2.98**	–0.09	–0.94	2.02*	–5.16***	7.44***	7.05***	–0.13
(POST–RC)	2.68**	–2.3*	1.7†	–0.86	–1.07	2.06*	–2.96**	6.2***	3.65***	0.76
Eastern										
(RC–PRE)	5.84***	6.47***	8.26***	5.1***	1.42	8.5***	0.86	–5.27***	13.05***	–1.74†
(POST–PRE)	2.01*	0.78	4.81***	5.7***	2.84**	–0.16	7.56***	4.08***	8.98***	3.82***
(POST–RC)	–3.35***	–3.82***	–3.96***	–4.3***	1.8†	–3.44***	–0.04	6.39***	–3.64***	3.11**
All Regions										
(RC–PRE)	5.06***	8.2***	14.09***	4.54***	0.55	6.22***	2.32*	–5.45***	10.27***	–7.01***
(POST–PRE)	4.36***	3.53***	13.18***	5.12***	–0.67	1.96*	11.91***	13.03***	13.36***	0.35
(POST–RC)	–1.49	–5.4***	–2.59**	–3.13***	–0.73	1.28	–0.46	13.44***	–1.01	3.69***
PRE										
(Eastern–Western)	0.05	0.39	–0.17	–1.06	–0.69	–0.13	0.22	–0.08	–1.12	–1.22
(Eastern–Central)	–0.22	–0.19	–0.58	–1.00	–0.65	–0.41	–0.52	–0.05	–1.12	–0.2
(Central–Western)	0.66	1.12	0.48	–0.52	–0.05	0.65	1.27	–0.08	0.02	–1.41
RC										
(Eastern–Western)	2.49*	2.83**	11.89***	–1.17	–6.4***	9.43***	–0.08	–2.74**	0.97	–6.23***
(Eastern–Central)	1.57	1.85†	0.36	1.01	–3.94***	4.94***	0.88	–10.36***	3.01**	–0.46
(Central–Western)	7.89***	2.79**	3.47***	–4.77***	3.32***	0.13	–2.81**	2.53*	–0.2	–0.64
POST										
(Eastern–Western)	–4.31***	–4.48***	–0.09	–1.3	4.44***	–7.63***	–1.81†	2.57*	–3.00**	–0.64
(Eastern–Central)	–7.6***	0.69	–4.59***	–1.07	1.38	–2.51*	5.15***	–9.46***	–7.18***	0.59
(Central–Western)	3.05**	–4.99***	2.24*	–1.42	–0.8	1.76†	–3.32***	4.67***	5.95***	–7.28***
All Periods										
(Eastern–Western)	0.76	0.49	1.12	–1.94†	–0.12	2.01*	–1.3	1.12	–1.6	–2.35*
(Eastern–Central)	–0.26	1.38	–2.76**	–1.49	–1.32	1.96*	1.29	–3.11**	–1.98*	–0.51
(Central–Western)	4.15***	–0.61	4.18***	–3.48***	1.42	–0.91	–1.92†	2.34*	1.32	–1.84†

The table reports the results of unbalanced panel multivariate regression model (1):

$$\text{ROA}_{i,t} = \alpha + \beta_1\text{STATE}_{i,t} + \beta_2\text{LEGAL}_{i,t} + \beta_3\text{FOREIGN}_{i,t} + \beta_4\text{EMPLOYEE}_{i,t} + \beta_5\text{BSIZE}_{i,t} + \beta_6\text{INDP}_{i,t} + \beta_7\text{SBSIZE}_{i,t} + \beta_8\text{BDMEET}_{i,t} + \beta_9\text{SBMEET}_{i,t}$$
$$+ \beta_{10}\text{SHMEET}_{i,t} \beta_{11}\text{CONTROL}_{i,t} + \varepsilon_{i,t}$$

where for company i in a given region in fiscal year t; ROA (the dependent variable) = return on assets; STATE = proportion of shares held by the state; LEGAL = proportion of shares held by legal person; FOREIGN = proportion of shares held by foreign shareholders; EMPLOYEE = proportion of employee shares; BSIZE = board size, the number of directors on the corporate board; INDP = the number of independent directors on the corporate board; SBSIZE = the number of members on the supervisory board; BDMEET = the number of meetings of the board of directors in the fiscal year; SBMEET = the number of meetings of the supervisory board in the fiscal year; SHMEET = the number of shareholders meeting in the fiscal year; CONTROL = control variable, the natural logarithm of the firm's number of employees of at the end of fiscal year.

Notes:

[a] The panel data set is unbalanced because some companies were listed between 2002 and 2005.

[b] The Western Region consists of six provinces–Gansu, Guizhou, Qinghai, Shaanxi, Sichuan and Yunan; five autonomous regions–Inner Mongolia, Ningxia, Xinjiang, Tibet and Guangxi, and one municipality–Chongqing; The Central Region consists of eight provinces–Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan; The Eastern Region consists of eight provinces–Hebei, Liaoning, Shandong, Jiangsu, Zhejiang, Guangdong, Fujian, and Hainan; three Municipalities–Beijing, Tianjin and Shanghai.

[c] *The Code of Corporate Governance for Listed Companies in China* (*The Code*) issued by the China Securities Regulatory Commission (CSRC) and the State Economic and Trade Commission (SETC) in January 2002. *The Code* is applicable to all listed companies in China, and is the major measuring standard for corporate governance evaluation. With the objective of eliminating the dominant managerial powers of the corporate board in China's listed companies, the CSRC issued *The Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies* (*The Independent Directors Guidelines*) in August 2001, mandating that by 30 June 2003. We, accordingly, divided the panel dataset into 3 sub datasets: pre-regulation-change (PRE) in 2001, regulation-change (RC) in 2002-03 and post-regulation-change (POST) in 2004-05.

[d] For each region, we run regression model (1) three times. The figures in the first row for each region are the estimated coefficients and statistical significance levels using pre-regulatory improvement (PRE) dataset in 2001. The figures in the second row for each region are the estimated coefficients and statistical significance levels using regulatory changing (RC) dataset in 2002-03. The figures in the third row for each region are the estimated coefficients and statistical significance levels using post-regulatory improvement (POST) dataset in 2004-05.

[e] White's (1980) t-statistics adjusted for heteroskedasticity are used to estimate the significance level of the differences in each pair of estimated coefficients by regulatory–change period, reported in Panel A, per region: RC vs. PRE, POST vs. PRE, RC vs. POST; and then for the differences in each pair of estimated coefficients by economic region, reported in Panel A per regulatory–change period: Eastern vs. Western, Eastern vs. Central, Central vs. Western.

† if $p < 0.10$; * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$ (two-tailed p-values are used in determining significance)

<u>Table 5</u>: balanced panel multivariate regression model (1). Comparative results (a) by economic region and regulatory–change period; b) by combined three economic regions and regulatory–change period; (c) by combined three regulatory–change periods and economic region [a, b, c]

Panel A: Estimated regression coefficients [d]

Region	STATE	LEGAL	FOREIGN	EMPLOYEE	BSIZE	INDP	SBSIZE	BDMEET	SBMEET	SHMEET	Adj. R^2	Sample/observation
<u>Western</u>												
(PRE)	0.037	−0.0003	−0.012	0.348*	0.0002	−0.0002	−0.001	−0.003	−0.002	0.014**	0.063	232
(RC)	0.003	0.012	−0.053	0.583***	0.002*	0.005	0.001	−0.005**	0.004***	0.008*	0.020	232/464
(POST)	0.125***	0.117***	0.044	1.28***	−0.006**	0.038***	0.009***	−0.011***	0.006***	0.005***	0.18	232/464
<u>Central</u>												
(PRE)	0.04†	0.034	0.09	0.171†	0.002	0.003	0.003	−0.003	−0.002	0.009*	0.036	229
(RC)	0.065***	0.064***	0.149***	0.317†	0.004***	0.003***	−0.001	−0.003*	0.0002	0.007*	0.049	229/458
(POST)	0.128***	0.034***	0.422***	−3.85***	0.011	0.011	−0.001	0.009†	0.011†	−0.004	0.038	229/458
<u>Eastern</u>												
(PRE)	0.062	0.092†	−0.197	0.213†	−0.001	−0.012	−0.002	0.005†	−0.021†	0.007	0.035	622/622
(RC)	0.044	0.058†	0.099***	0.272***	−0.002	0.018***	0.005***	−0.004***	−0.001	0.008***	0.033	622/1244
(POST)	0.079***	0.049**	0.073***	0.389***	0.003	0.004	0.002***	−0.002	0.000	0.006***	0.032	622/1244
<u>All Regions</u>												
(PRE)	0.054	0.063†	−0.193	0.189**	0.0004	−0.008	−0.001	0.002	−0.014†	0.007*	0.028	1083
(RC)	0.039***	0.05***	0.084***	0.321***	0.001	0.012***	0.002***	−0.004	−0.000	0.007***	0.027	1083/2166
(POST)	0.099***	0.066***	0.129***	0.21	0.001	0.02†	0.003***	−0.002†	0.004†	0.003*	0.033	1083/2166
<u>All Periods</u>												
(Eastern)	0.062***	0.061***	0.025	0.23***	0.001	0.003	0.003*	−0.002	−0.003	0.006***	0.023	622/3110
(Central)	0.091**	0.052	0.336**	0.239†	0.01†	−0.007†	0.0002	0.001	0.006	0.004	0.018	229/1145
(Western)	0.058*	0.051*	−0.004	0.57***	0.002	0.004	0.005†	−0.008***	0.005*	0.009*	0.051	232/1160

Panel B: Tests for differences between estimated coefficients: RC vs. PRE, POST vs. PRE, RC vs. POST [e]

Region	STATE	LEGAL	FOREIGN	EMPLOYEE	BSIZE	INDP	SBSIZE	BDMEET	SBMEET	SHMEET
Western										
(RC–PRE)	−1.72†	1.10	−1.01	3.85***	2.06*	1.12	1.99*	−1.75†	13.09***	−1.72†
(POST–PRE)	6.21***	7.24***	0.678	10.02***	−2.91**	4.13***	6.65***	−3.05**	12.79***	−7.11***
(RC–POST)	−5.00***	−5.35***	−1.05	−6.25***	3.48***	−3.31**	−4.17***	1.74†	−2.95**	0.62
Central										
(RC–PRE)	1.86†	1.56	7.5***	0.84	5.86***	−4.74	−3.91***	−0.45	2.62**	−0.63
(POST–PRE)	2.46*	−0.13	5.42***	−5.95***	0.87	0.69	−1.07	2.22*	2.12*	−3.40***
(RC–POST)	−1.63†	1.52	−4.46***	5.97***	−0.61	−0.76	−0.09	−2.26*	−1.69†	2.32*
Eastern										
(RC–PRE)	−0.62	−1.11	10.68***	0.75	−0.45	7.6***	12.39***	−16.27***	7.95***	4.88***
(POST–PRE)	1.67†	−2.37*	13.71***	12.07***	0.7	1.38	10.94***	−10.4***	6.31***	−10.76***
(RC–POST)	−1.16	0.26	0.74	−1.52	−0.81	1.23	5.23***	−3.9***	−0.57	9.75***
All Regions										
(RC–PRE)	−1.73†	−1.08	3.36***	6.12***	0.13	6.95***	5.96***	−11.79***	7.36***	−2.06
(POST–PRE)	8.52***	0.26	6.29***	0.08	0.1	2.25*	6.13***	−4.17***	8.2***	−3.19**
(RC–POST)	−6.54***	−0.97	−2.83**	0.4	−0.08	−0.64	−0.96	−1.9†	−1.35	2.22*
PRE										
(Eastern–Western)	0.35	1.53	−0.45	−0.73	−0.24	−0.92	−0.16	2.08*	−1.52	−0.97
(Eastern–Central)	0.32	0.94	−0.85	0.28	−0.57	−1.25	−1.14	2.21*	−1.49	−0.33
(Central–Western)	0.07	0.82	0.38	0.38	0.49	0.65	1.11	−0.09	−0.04	−0.81
RC										
(Eastern–Western)	0.84	1.11	11.65***	−9.44***	−3.99***	6.32***	3.9***	0.87	−2.27***	−0.01
(Eastern–Central)	−0.5	−0.11	−1.76†	−0.18	−4.2***	3.78***	6.0***	−0.57	−1.06	0.1
(Central–Western)	10.23***	6.76***	4.87***	−1.13	4.62***	−0.41	−4.09***	6.45***	−4.12***	−0.35
POST										
(Eastern–Western)	−1.73†	−1.96*	0.29	−9.6***	2.84**	−7.58***	−3.45***	2.75***	−4.13***	0.61
(Eastern–Central)	−1.04	1.26	−8.4***	6.27***	−1.45	−6.72***	0.77	−1.79†	−1.97*	2.58**
(Central–Western)	0.14	−3.7***	2.62**	−8.8***	1.98*	−2.48**	−3.85***	8.7***	0.73	−3.52***
All Periods										
(Eastern–Western)	0.13	0.28	0.38	−7.81***	−0.86	−0.14	−0.74	2.17*	−3.78***	−0.99
(Eastern–Central)	−0.98	0.42	−4.21***	−0.07	−2.23*	2.95**	1.19	−0.61	−2.25*	0.54
(Central–Western)	1.99*	0.03	5.4***	−2.66**	1.75†	−2.24*	−1.92†	2.15*	0.11	−1.93†

The table reports the results of panel multivariate regression model (1) :

$$\text{ROA}_{i,t} = \alpha + \beta_1\text{STATE}_{i,t} + \beta_2\text{LEGAL}_{i,t} + \beta_3\text{FOREIGN}_{i,t} + \beta_4\text{EMPLOYEE}_{i,t} + \beta_5\text{BSIZE}_{i,t} + \beta_6\text{INDP}_{i,t} + \beta_7\text{SBSIZE}_{i,t} + \beta_8\text{BDMEET}_{i,t} + \beta_9\text{SBMEET}_{i,t}$$

$$+ \beta_{10}\text{SHMEET}_{i,t} + \beta_{11}\text{CONTROL}_{i,t} + \varepsilon_{i,t}$$

where for company i in a given region in fiscal year t; ROA (the dependent variable) = return on assets; STATE = proportion of shares held by the state; LEGAL = proportion of shares held by legal person; FOREIGN = proportion of shares held by foreign shareholders; EMPLOYEE = proportion of employee shares; BSIZE = board size, the number of directors on the corporate board; INDP = the number of independent directors on the corporate board; SBSIZE = the number of members on the supervisory board; BDMEET = the number of meetings of the board of directors in the fiscal year; SBMEET = the number of meetings of the supervisory board in the fiscal year; SHMEET = the number of shareholders meeting in the fiscal year; CONTROL = control variable, the natural logarithm of the firm's number of employees of at the end of fiscal year.

Notes:

[a] The panel data set is balanced because the companies listed between 2002 and 2005 were removed, and only remain the companies listed since 2001 or early.

[b] The Western Region consists of six provinces–Gansu, Guizhou, Qinghai, Shaanxi, Sichuan and Yunan; five autonomous regions–Inner Mongolia, Ningxia, Xinjiang, Tibet and Guangxi, and one municipality–Chongqing; The Central Region consists of eight provinces–Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, and Hunan; The Eastern Region consists of eight provinces–Hebei, Liaoning, Shandong, Jiangsu, Zhejiang, Guangdong, Fujian, and Hainan; three Municipalities–Beijing, Tianjin and Shanghai.

[c] *The Code of Corporate Governance for Listed Companies in China* (*The Code*) issued by the China Securities Regulatory Commission (CSRC) and the State Economic and Trade Commission (SETC) in January 2002. *The Code* is applicable to all listed companies in China, and is the major measuring standard for corporate governance evaluation. With the objective of eliminating the dominant managerial powers of the corporate board in China's listed companies, the CSRC issued *The Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies* (*The Independent Directors Guidelines*) in August 2001, mandating that by 30 June 2003. We, accordingly, divided the panel dataset into 3 sub datasets: pre-regulation-change (PRE) in 2001, regulation-change (RC) in 2002-03 and post-regulation-change (POST) in 2004-05.

[d] For each region, we run regression model (1) three times. The figures in the first row for each region are the estimated coefficients and statistical significance levels using pre-regulatory improvement (PRE) dataset in 2001. The figures in the second row for each region are the estimated coefficients and statistical significance levels using regulatory changing (RC) dataset in 2002-03. The figures in the third row for each region are the estimated coefficients and statistical significance levels using post-regulatory improvement (POST) dataset in 2004-05.

[e] White's (1980) t-statistics adjusted for heteroskedasticity are used to estimate the significance level of the differences in each pair of estimated coefficients by regulatory–change period, reported in Panel A, per region: RC vs. PRE, POST vs. PRE, RC vs. POST; and then for the differences in each pair of estimated coefficients by economic region, reported in Panel A per regulatory–change period: Eastern vs. Western, Eastern vs. Central, Central vs. Western.

† if $p < 0.10$; * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$ (two-tailed p-values are used in determining significance)