

# The Impact of the Split-share Structure Reform on Compensation Incentive Based on Firm Performance in China

*YANG Qing, SHI Lin*

(Contact information: YANG Qing:  
Institute for Financial Studies, School of Economic  
Fudan University, Shanghai, China, 200433  
Email: [qyang@fudan.edu.cn](mailto:qyang@fudan.edu.cn);  
Tel: +86-13817651131;

*YURTOGLU Besim Burcin*

Contact information: Prof. Dr. B. Burcin Yurtoglu:  
Department of Economics, University of Vienna,  
BZW, Brunner Street 72, A-1210 Vienna, Austria;  
&  
WHU Otto Beisheim School of Management  
Burgplatz 2, 56179 Vallendar – Germany  
Email: [burcin.yurtoglu@whu.edu](mailto:burcin.yurtoglu@whu.edu)

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**[Keywords]** Spit-share structure reform; corporate performance; compensation incentives

**Corresponding author:** YANG Qing, Institute for Financial Studies, School of Economic, Fudan University (200433). This paper is sponsored by Education Humanities and Social Science of the State Education Commission (Grant No. 07JC630057) and Shanghai Social Science (Grant No. 2008BJB018).

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In April 2005, China's capital market launched the split-share structure reform which put an end to the dualistic structured stock market with Chinese characteristics. This paper takes the split-share structure reform as an exogenous policy variable and analyzes the relationship between executive compensation and corporate performance of the listed companies of China during the period from 2001 to 2007. It breaks down listed companies into different categories based on their various corporate governance mode, e.g. state bureau-owned, central state-owned, local state-owned, collective and employee-owned, and private or foreign-owned. Our research shows that the non-tradable reform has a significant impact on the improvement of executive compensation incentive in listed companies. Also as a policy variable, the signaling effect of the reform had a bigger influence than its actual practice, with the state bureau owned, central state-owned and collective-owned listed companies most significantly affected and private-owned ones the least. Through sensitivity analysis, it is also discovered that compensation raise was mainly from the growth of corporate assets rather than the relevance between executive compensation and corporate performance measured by market indicators or accounting indicators, which means corporate performance has limited contribution to the compensation incentive.

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## **I. Introduction**

During the modernization reform of Chinese enterprises, the issue of executive compensation of listed companies has received extensive concerns. In the Agency Theory and the Human Capital Theory, well-defined compensation contract is regarded as a major mechanism of coordinating managers' activities and shareholders' objectives. (Jensen and Meckling, 1976; Jensen and Murphy, 1990) Currently, there are two common practices for resolution of the conflict of interest between managers and shareholders: incentive measures that link the executive compensation with corporate performance; and awarding measures like stock, option, and yearly bonus, and threats like dismissal based on observation of operating performance under supervision of the board of directors. (Fama, 1980)<sup>①</sup>

Before China's split-share structure reform, it is generally believed that the appointment of board members in companies with state background is a political process rather than an observation based on the expertise and experience of the nominees, which weakens the competency of supervising the managers of the board. (Liu and Otsuka, 2004) Many scholars had the view that there were serious problems of insider control and limited supervision in

China's listed companies before the reform, especially in state-owned enterprises. Some research towards executive compensation and governance effect shows that China has a prominent problem of lacking executive incentives and no significant positive correlation between executive compensation and corporate performance (Wei Gang, 2000; Li Zengquan, 2000) or relevance with the change of operating margins (Liu Bin, 2003). Even if perceived from the point that marginal output determines manager's compensation, executive compensation in China during the period from 2001 to 2004 was rather low compared with the earnings they created in general (Liu Junhu, 2006). Meanwhile, it was also noticed that the mechanism of executive compensation determination varies for listed companies with different ownership background which may have an impact on the effectiveness of compensation incentive. Yu Zhidong (2001) supported the viewpoint of positive relevance between state share proportion and return of equity. Scholars such as Chen Donghua (2005) pointed out that the compensation control implemented by state-owned enterprises lead to inefficiency of compensation incentive and that company-paid consumption became the only way out for the executives. Li Wei'an and Zhang Guoping (2005) think there was a lack of constraint mechanism in China's listed companies, especially in terms of equity incentives. Firth et al. (2006) noticed that there were multiple ownership forms in China's listed companies such as state assets bureau controlled, central or local government controlled, or private controlled with comparatively higher ownership concentration. Thus, these controlling shareholders had different governance objectives, which made the compensative incentive and constraint mechanism appear to be different.

Since the split-share structure reform launched in April, 2005<sup>②</sup>, the corporate governance structure of listed companies has gradually been brought in line with international standard, and the executive compensation incentive mechanism has been improved. Although, there is the argument that China's listed companies still have low governance efficiency with no executive incentive mechanism, e.g. low compensation in absolute term, unreasonable compensation structure, excessive company-paid consumption and over-emphasis on cash incentive and neglect of reputation incentive (Ji Xianqing, 2007), the mechanism has been gradually deepened after all. Equity incentives plan for executives was put into practice in 2006<sup>③</sup>. Quite a few scholars have conducted research on the relationship between the split-share structure reform and compensation incentive governance from a market effect perspective since, and have come up with different conclusions. Liao Li and Shen Hongbo adopted the Fama-French 3-factor model in research towards the 1058 sample companies which had completed the split-share structure reform and discovered the reform truly improved corporate governance of China's listed companies and had a significant positive market effect. He Chengying and Li Xiang (2007), however, indicated that the executives' excessive earnings had no significant relationship with corporate characteristics. Since the change of compensation mechanism would cause executives' interest objectives and values to deviate from the shareholders', this special stock system requires further analysis based on indicators of both operating performance and market performance (Yang Dan, 2008). Lv Changjiang (2009)'s research on sample companies which announced the equity incentives plan from 2005 to 2008 and discovered that different corporate governance had an impact on whether the equity incentives plan would have real incentive effect or would end up being another benefit plan, and that improvement of the incentive period and condition would

enhance the effect of the equity incentives measure. Zhang Shumin and Xu Zhi (2010) tested the relationship between executive monetary payment and return of equity in the sample listed companies during the period from 2001 to 2008 and found that the executive monetary payment was mainly determined by accounting indicators so to support the policy suggestion that equity incentives should be used more often. However, we suppose that most previous research doesn't include the split-share structure reform as a policy variable to differentiate the executive incentive compensation and the pursuit of interest.

In view of the difference in corporate governance objectives and incentive compensation mechanism among listed companies with various types of controlling shareholders, we suppose the split-share structure reform has facilitated the practice of performance-based incentive compensation system to a large extent, especially from state-owned enterprises. Therefore, we have taken the split-share reform as the dividing ridge and conducted comparative study on the change of governance structure and incentive compensation towards the sample companies. Contributions of this research are: (1) introduction of the split-share structure reform as a policy variable to make comparison in the market and expand the study period from 3 years (1998 to 2000 by Firth et al., 2006) to 7 years (2001 to 2007); (2) added mixed effect of corporate governance and ownership background to analyze relationship between executive compensation and corporate performance; (3) take into account both accounting and capital market earnings as corporate performance indicators when analyzing the impact of the reform towards executive incentive compensation; (4) use the pay-performance sensitivity model (Jensen and Murphy, 1990) to analyze the improvement degree of China's incentive compensation system. This paper is organized as follows: in part 2, the theoretical foundation and logical framework of China's executive incentive compensation before and after the split-share structure reform are discussed; research model and methods are explained in part 3; part 4 is empirical study including the pay-performance sensitivity analysis and robust analysis; part 5 gives the conclusions and suggestion.

## **II. Practical background and foundation for executive incentive compensation in listed companies**

### *1. Analysis on the determination mechanism of executive compensation in China's state-owned enterprises*

The executive appointment and removal mechanism in China's listed companies was evolved from administration and system oriented to market oriented. The compensation determination mechanism, accordingly, also went through such a transform process. (Li Wei'an and Zhang Guoping, 2005)

Since 1978 when Chinese government started the reform of a market-orientated corporation, the executive compensation system in state-owned enterprises has shown characters of coupling with the corporate performance. In 1997, corporatization and profit maximization became the focus of SOEs reform. Executives in SOEs were granted more autonomy. The executive annual salary system has become an important incentive arrangement. But during that period of time, due to some problems (multiple objectives of corporate governance in SOEs which weakened the relationship between management effort and corporate performance; executive compensation control; the split-share structure that separates the interests of the management and shareholders), fixed salary with very limited performance-based compensation incentive was dominant in the compensation system of listed companies. So company-paid consumption became the alternative for executives in SOEs.

After 2003, listed companies started to practice the independent director system to improve their corporate governance structure. We suppose this may force the companies to adopt executive compensation plan that links the corporate operating performance and accounting indicators. Since 2005, with the launch of the split-share structure reform, corporate governance of listed companies has been further improved and interest of the major and minor shareholders merged, which creates the system environment with market measurement of corporate performance for making the compensation incentive policy of the listed companies. So the executive compensation can be further brought in line with market indicators<sup>④</sup>. Although executive compensation had a low sensitivity with the change of performance, the compensation system reform has already exerted positive effect on the compensation incentive mechanism. (Fang Junxiong, 2009) However, the executive compensation structure in China's public companies is still simple with basic salary in dominant place and very little part of incentive pay which only includes annual bonus and dividend. The incentive pay is mostly linked to the accounting profit (e.g. ROE, ROA) (Li Zhi, 2008).

Over time, the accounting performance based compensation contract was considered inefficient for executive incentive. Long-term incentive based on equity was gradually adopted. However, due to some concerns such as loss of state assets, equity incentive was advancing slowly within the reform of SOEs. Until 2006, the equity incentive reform of SOEs was officially launched. In September, 2009, the State Council issued an document setting the rule that executive compensation in central SOEs should be consisted of three parts including basic annual salary, performance bonus, and medium-and-long-term incentives, which shows the supporting attitude of the state for the performance-based executive compensation incentive plan in SOEs.

So we suppose that the split-share structure reform as a policy signal variable is an important factor that has major impact on executive incentive compensation and links it with corporate performance (both accounting indicators and market performance).

## *2. Types of controlling shareholders and executive incentive compensation system in China's listed companies*

Tenev (2002) indicated that in state-controlled listed companies, the alternative compensation besides monetary salary also includes political promotion, company-paid consumption, etc. For SOEs with different types of controlling shareholders, the executive incentive mechanism might be different. Since the diversified ownership policy for corporate reform came out in 1998 and the introduction of strategic investors in 2003, ownership of some controlling shareholders has been able to be transferred or diversified. Jia Ming (2009) pointed out that there is a double agent problem within listed companies, government and the investors in China under current system environment. To protect the investors' interest and regulate the selling of major shareholders' non-tradable shares remains the key to the sound development of China's capital market. The change of ownership type concentration ratio will have a big impact on China's executive compensation system.

When it comes to the types of controlling shareholders in China's public companies, two factors have to be considered. One is the width of ownership structure. A common classification is the 3 categories: state-owned share, legal entity share and tradable share. But a more precision breakdown should include such controlling shareholders as the state asset bureau, local government, collectivity, universities, employee, individuals and foreign entities. The other factor is the depth of the ownership, namely the concentration rate of equity. This type of breakdown includes concentration ratio of top 5 shareholders and difference between the equity proportion owned by the first and second largest shareholders.

In China, the incentive compensation system varies with the different ownership structure of companies. With regard to the corporate governance of SOEs, many scholars point out that the tunnel behavior of the collusion between management and virtual agent or controlling shareholder is the negative effect of the incentive compensation and governance for SOE executives. For instance, directors and executives of some public companies controlled by State-owned Assets Bureau which doesn't have the corresponding cash flow claim don't have the shareholder wealth maximization objective. In principle, government officials, who are not allowed to participation in the corporate operation and management, only exercise their control over the company through the non-executive directors on the board. Thus, the independence of the board decides the effectiveness of the corporate governance. However, the earlier nomination and selection of board members appeared to be political processes (Qian, 1998; Zhang, 1998) instead of based on the expertise and specialty of the candidates, which lowered the monitoring capability of the board. Therefore, before the non-tradable shares reform, quite a few scholars held the view that the public companies controlled by State-owned Assets Bureau may have little supervision so there is a more serious problem of insider control. In the companies controlled by the local state-owned assets bureaus, especially, the principal-agent problem is more severe.

In terms of the depth of ownership structure in China, besides the centralization of shares, a distinct characteristic of Chinese firms is that they have one dominant shareholder

whose ownership is much higher than the next largest shareholder, which brings up the problem of the impact of ownership structure on the incentive compensation system and corporate performance. Internationally, there are similar conclusions regarding the research on the relations between ownership concentration and corporate performance. Levy (1983) discovered that the stock price of U.S. public companies is positively related to the ownership concentration. Claessens, Djankov, Fan and Lang conducted research on the ownership concentration of companies in South East Asia and found it positively related to enterprise value. From Lins' research towards companies in 18 emerging countries, he had a similar conclusion that the major shareholder plays an important role in corporate governance, having a positive impact. Steenthomsen and Torben Pedersen (2000) discovered from the research on 435 sample companies in 12 countries that given the differential variables such as industry, capital structure, and country effect, there is positive relevance between ownership concentration, shareholder wealth, and corporate performance.

Taking into account both the depth and width of ownership structure and its relation with corporate performance, there are two contradictory viewpoints in the international academic field. One view holds that if there is a controlling shareholder, ownership structure will exert two opposite effects on corporate governance and performance, namely interest equalization effect and interest grab effect. As Shleifer and Vishny (1986) pointed out, the fortune created through increasing stock price equalizes the interests of both the controlling shareholders and minority shareholders. So the controlling shareholders would have sufficient incentive to collect information to monitor the management to prevent the "free ride" problem in the situation of highly decentralized shares. Besides, majority shareholders may participate in the corporate operation directly, which would solve the problem of asymmetry information between the shareholder and management of investment opportunities and corporate performance. So, the controlling shareholders have both the motive and the ability to supervise the management in order to realize their own interest. In this sense, there will be better profitability and performance for companies with centralized shares company than those with decentralized share.

However, after the split-share structure reform, performance of all listed companies is shown on the same information platform. More and more individuals and institutional investors become major shareholders of listed companies and play roles on the company boards. They will strive to improve the stock price of the companies and shareholders' benefit. We suppose companies like this have a stronger motivation for performance-based executive incentive compensation. Meanwhile, private and foreign shareholders access the Chinese market one after another. So SOEs may sell or evaluate their ownership to them on the market price. This also facilitates the listed companies to adopt the incentive compensation that links the company stock price, especially for SOEs. Furthermore, we suppose the split-share structure reform also help improve the corporate governance of the listed companies, which means the executive compensation of these companies is likely to be more corporate performance oriented.

### *3. The split-share structure reform and executive incentive compensation policy in listed companies*

China's marketization reform generates the objective of making profits in the state-owned enterprises, among which the state still holds the controlling shares. Though after

the corporation reform of state-owned enterprises, part of the shares were sold to the public investors, the state-owned shares and legal entity-owned shares still held the decisive voting right. Administrative intervention in the operation of public companies was very common and the decision making power of the management was hampered (Chen Donghua, 2005). The interest system separation of the tradable and non-tradable shares caused severe conflicts of the two types of shareholders, which also make it more difficult for public companies to practice incentive compensation. The non-tradable shares reform has been the first step to solve the dilemma of giving the management the right of operation while at the same time maintaining the ultimate control over the company.

Before 2005, the state-owned shares, legal entity-owned shares and employees' share in China were non-tradable because of the separation of tradable and non-tradable market. Under such a circumstance, there was congenital obstruction in the corporate structure and executive incentive compensation in China's public companies, which made it hard to establish an ideal assessment standard and incentive system towards corporate executives. Separate of share rights also caused disparity of the risk and return between holders of the tradable and non-tradable shares. It could lead to short-term behavior of executives and cause serious insider control (Wu Xiaoqiu, 2006). So it was difficult to link the executive compensation with corporate performance. The board of directors which was represented by the big shareholders had little incentive to motivate the executives by adopting the system coupling with corporate indicators in the market.

Under the circumstance of separated share rights, the controlling shareholders hardly considered or even hampered the interests of the minority shareholders when it came to making corporate decisions. Measures of executive incentive compensation barely had any binding effect. Although the implementation of executive incentive compensation in the public companies required approval from the general meeting of shareholders, the decision concerning executive incentive compensation often appeared to be automatic or routine, given the fact that the executives of public companies were inextricably tied up with the controlling shareholders (Firth, 2006). Because the positions of the executives were usually political appointed and the state institutions were the controlling shareholders of the public companies. In the short run, the big shareholders could take advantage of their controlling right to transfer the company assets for their own profit while the minority shareholders could appear to have a passive attitude of "rational indifference" or "voting by foot" (Li Zhi, 2008). With the absence of effective regulation, the executive incentive compensation in public companies was often regarded by the public as another form of common assets loss (Yan Jichen, 2007).

After 2003, public companies carried out the system of independent directors to improve their corporate governance, which, in our view, is likely to urge the companies to adopt the CEO compensation plan that is linked to corporate operating performance and accounting objectives. And the non-tradable shares reform in 2005 has made corporate performance more market-oriented and measurable. Thus, the CEO compensation system should gradually get in line with market indicators.

After the problem of non-tradable shares is solved, this tradability created will decentralize the shares of companies to a certain degree. Though it is not likely to change the "big share" ownership structure in public companies, the corporate governance of these

companies will be effectively balanced with other major shareholders joining. On the other hand, the convergence of interests of the major and minor shareholders will also lead to better corporate governance. Under the system of full circulation of shares, the fundamental change of China's public companies is the convergence of the interest system for various types of shareholders and the formation of an ownership foundation with common interest (Li Zhi, 2008). That is to say, all types of shareholder will be able to benefit from the improvement of performance and stock price of the company. The non-tradable shares reform, at the same time, effectively transmits the impact of an optimized external corporate governance environment, which facilitates the reset of the ability and participation of related principals in the public companies and develops a new incentive system that emphasizes on long-term development, stock performance, and maximization of shareholder value of the company (Wang Ning, Yang Qing, 2006). Additionally, after the non-tradable shares reform, the ownership structure, though still in many cases controlled by the largest shareholder, will gradually be decentralized, which will lighten the problem of controlling shareholders and encourage a wider practice of incentive compensation in public companies.

From the discussion above, we see the split-share structure reform has served as a dividing ridge in the marketization of the executive compensation and governance in China's public companies. It has been sending a signal to the market that the operation of companies is going to be more market-orientated. Meanwhile, on this remarkable dividing line, there is certain difference in the rapidity of the different types of controlling shareholders' acting towards the market. Therefore, we propose the following:

**Hypothesis 1:** The split-share structure reform as an exogenous policy variable has been positive on improving the executive compensation incentive system based on corporate performance with a stronger signaling effect than its actual implementation.

**Hypothesis 2:** The split-share structure reform has facilitated the performance-based compensation system in companies with various ownership backgrounds, especially for incentive compensation plan that is based on market performance of the company.

**Hypothesis 3:** However, the reform has different influence on the executive compensation and incentive degree for companies with different types of controlling shareholders, (eg. the reform has positive influence on the executive compensation and incentive degree for companies with higher controlling shareholders).

### III. Research model and methods

#### 1. *Executive incentive compensation model in listed companies with different types of ownership*

In order to differentiate the degree of impact of the split-share structure reform towards the relation between executive compensation and corporate performance, we breakdown the controlling shareholders of public companies into private and foreign individual (BLOCK), state assets bureau (BUREA), central state-owned enterprise (SOECG), local government or local state-owned enterprise (SOELG), and collectivity (COLLE) based on Firth's (2006) research model, and consider the interactive affect of controlling shareholder towards the corporate performance. The advancement of this paper is the introduction of dummy variable

of the split-share structure reform and the comparative research with it. We also take into account the characters of the board independence (INDEP) and ownership concentration (HHI5). We use market indicators, RET and EPS and operating performance ratio, ROA and ROS to measure the corporate performance. Moreover, we use two comparative models of regression analysis to test the market effect of policy implementation: one that uses the year 2005 (when the split-share structure reform was announced) as the market signal variable of the reform, and the other that uses the actual reform date as the reform variable.

The basic research model is:

$$\text{Model 1: } \text{PAY} = \beta_0 + b\xi + \beta_1\text{SIZE} + \beta_2\text{PERF} + b_1\xi \cdot \text{PERF} + \beta_3\text{COLLECT} + \beta_4\text{SOECG} + \beta_5\text{SOELG} + \beta_6\text{BLOCK} + \beta_7\text{PERF.COLLECT} + \beta_8\text{PERF.SOECG} + \beta_9\text{PERF.SOELG} + \beta_{10}\text{PERF.BLOCK} + \beta_{11}\text{HHI5} + \beta_{12}\text{Z} + \beta_{13}\text{INDEP} + \text{CONTEL}$$

In which, PAY represents the executive compensation for which we use the salary of the top 3 executive as a proxy. We take the effect of the split-share structure reform into our research framework and use  $\xi$  as the signal variable of the reform ( $\xi$  equals 1 when the reform is completed while  $\xi$  equals 0 when it is not). In the research on the factors affecting the executive compensation in the public companies, the majority conclusion is that executive compensation is positively related to the company scale and many hold the view that company scale is one of the most important factors that determine the executive compensation. While research from abroad finds a positive correlation between executive compensation and company scale, the scale effect in China is not significant due to the comparably low executive compensation. Apparently, the split-share structure reform helps to differentiate such an effect. Here, we use total assets of the company (SIZE) as the company scale variable (Boyd, 1994; Lin 2005; Firth 2006) and assume it has positive contribution to the corporate performance and executive compensation.

COLLECT equals 1 if the companies have collective controlling shareholders; SOECG equals 1 if the companies have central government controlling shareholders; SOELG equals 1 if the companies have local government controlling shareholders; BLOCK equals 1 if the companies have private or foreign controlling shareholders<sup>⑤</sup>.

The selection of performance indicators follows the principle of objectivity, generality and practicability. Based on these principles with reference of the established assessment system at home and abroad, we pick earnings per share (EPS) and stock return (RET) from the shareholder prospective to examine the market efficiency of the company before and after the reform. As for the measurement of corporate executives' operating performance, we pick return of total assets (ROA) and return of sales (ROS). Earnings per share (EPS) and stock return (RET) are both important financial indicators for public companies. Investors usually measure the quality of a stock based on EPS which is at the core of company value maximization (Morris, 2000). So the management has concern about EPS and RET as well as the operating performance of the company. Before 2005 when there were still non-tradable shares in the market, the executive paid more attention to the return of sales (ROS). In order to conform by international measurement, we adopt return of assets (ROA) as well to measure the change of operating profit brought by the CEOs. Here, PERF represents the overall performance of China's public companies; PERF.BUREA is an interactive variable which represents the corporate performance in BUREA; PERF.SOECG as the corporate

performance variable in SOECG; PERF.SOELG as the corporate performance variable in SOELG; PERF.BLOCK as the corporate performance variable in BLOCK; and PERF.COLLECT as the corporate performance variable in COLLECT.

To measure the depth of the ownership structure, we use HHI5 of the top 5 shareholders together with Z-index of the first and second largest shareholders ratio. Corporate governance is measured by ratio of independent directors (INDEP) which represents the supervision on the executives from the board. (Wang Yuetang, 2006) Furthermore, we take into account the characteristics of executive compensation in the market of China, we adopt dummy variables (CONTEL) to reflect the industrial and regional difference.

### *2. Sensitivity model of executive incentive compensation in China's listed companies*

To further examine the pay-performance sensitivity in China's public companies, we continue to observe the change of executive compensation. Based on the regression of the change of executive compensation together with the change of company scale and corporate performance in public companies with different types of controlling shareholders, we demonstrate the impact of the split-structure share reform on the executive compensation.

$$\text{Model 2: } \Delta\text{PAY} = \alpha_0 + \alpha_1 \zeta + \alpha_2 \Delta\text{PERF} + \alpha_3 \Delta\text{SIZE} + \alpha_4 \text{INDEP} + \text{CONTEL}$$

$\alpha_i$  is the coefficient in the model.  $\Delta\text{PAY}$  represents the change of the executive compensation in the public companies,  $\Delta\text{SIZE}$  the change of company scale in the form of assets, and  $\Delta\text{PERF}$  the change of corporate performance throughout the reform. Here, we divide the change of corporate performance into the change of RET ( $\Delta\text{RET}$ ) and the change of ROA ( $\Delta\text{ROA}$ ).

### *3. Sample selection and data source*

The split-share structure reform began from April, 2005 and lasted 3 years. Although the actual dates of reform are different with the sample listed companies, we assume that the announcement of the reform policy in 2005 sent a signal for corporate marketization. Thus we regard the year 2005 as a dividing ridge for the split-share structure reform, while we still take the actual reform dates of the sample companies as variables for the implementation effect for comparison. We select listed companies listed on Shanghai and Shenzhen Stock Exchange during the period from January 1, 2002 to December 31, 2007 as research objects and take the average salary of the top 3 executives in those companies as the proxy for executive compensation. Samples that have been delisted or with missing data and extreme values (e.g. those whose executive annual salary is under RMB 10,000) are removed. 8055 valid samples were obtained from SINOFIN Database for the corporate governance data, and WIND Database for the performance data.

## IV. Empirical analysis

### 1. Descriptive statistics

Table 1: Descriptive statistics of sample data (RMB 10,000)

Variable	sample (N)	Mean	Max	Min	Medium	Std.Dev.	
ROA	6963	2.32	99.38	-92.59	2.85	8.58	
ROS	6878	4.17	807.33	-199.91	4.67	30.52	
EPS	6851	0.16	5.53	-14.08	0.15	0.53	
RET	6968	0.49	12.12	-0.88	0.06	1.06	
HHI5	7878	0.21	0.72	0.002	0.17	0.14	
Z	8037	34.38	1343.77	1.00	5.33	94.74	
Indepr (%)	8055	0.29	0.75	0.00	0.33	0.12	
Executive compensation by ownership structure (RMB 10,000)							
burea	Before- reform	1674	18.15	744.88	0.80	38	24.76
	Post- reform	1785	29.73	653	1.41	64.2	50.86
collect	Before -reform	175	17.70	222	1.32	33.15	16.73
	Post- reform	201	25.84	5399.83	1.53	51.7	70.36
soecg	Before -reform	172	23.73	515	2.13	45	56.69
	Post- reform	190	47.21	1987.4	2.45	63.36	541.36
soelg	Before -reform	443	16.69	275	1.58	31.48	18.16
	Post- reform	494	25.32	628	2.00	48.09	45.03
block	Before -reform	1024	17.30	512.12	0.80	33.11	24.35
	Post- reform	1175	24.99	3058	0.80	45.5	146.62
Executive compensation by industry (RMB 10,000)							
industry1	4688	18.92	629.67	0.80	12.77	23.41	
industry2	1820	22.47	323.03	0.80	16.71	22.35	
industry3	343	21.01	95.22	1.14	16.55	16.34	
industry4	394	25.03	470.67	0.92	16.67	34.03	
industry5	102	164.73	5399.83	1.68	41.67	536.81	
industry6	423	20.05	124.50	0.91	16.02	16.19	
Executive compensation by region (RMB 10,000)							
area1	1140	29.76	5399.83	0.97	22.83	35.77	
area2	3468	26.30	634.2	0.80	16.29	97.03	
area2	1910	14.69	248.30	0.90	10.67	14.66	
area4	1225	14.93	401.43	0.80	9.35	22.75	

ROS, EPS, RET, ROA are corporate performance variables respectively representing return of sales, earnings per share, return of equity market, and return of assets; HHI5 is the ownership concentration ratio for top 5 shareholders of the listed companies; Z-index is the ratio between first and second largest shareholders' ownership; indepr is the independent directors ratio; burea, collect, soecg, soelg, and block are dummy variables respectively represent state assets bureau, collective, central SOEs, local SOEs and private (including foreign) shareholders as the actual controller of the listed companies; area 1, area2, area3 and area4 are dummy variables for regions include Shanghai and Shenzhen, coastal area (except Shanghai and Shenzhen), central area, and northwest area; industry1, industry2, industry3, industry4, industry5, and industry6 represent dummy variables for industries include manufacturing, commerce, public affairs, real estate, finance and insurance, and comprehensive businesses.

Table 1 presents descriptive statistics of corporate performance, company scale, corporate governance variables, and the executive compensation categorized by controlling shareholders, industries and regions. The mean (median) ROA, as a corporate operating performance indicator, is 2.32 (3.38) ranging from -92.59 to 99.38. The mean (median) ROS is 4.17 (4.67) ranging from -199.91 to 807.33. The mean (median) EPS, representing shareholder's interest, is 0.16 (0.15) ranging from -14.08 to 5.53. The mean (median) RET is 0.49 (0.06) ranging from -88% to 1212%. The mean (median) independent director ratio is 75% (33%). From these observations, we can tell the improvement of China's corporate governance and the supervision power in this regard.

From the statistics above, we see that there is a stronger improvement in terms of shareholders' interest and market return than the operating performance of the companies. Some macroeconomic factors such as the rapid growth of the economy may certainly have some effects. Generally speaking, the split-share structure reform should have a significant improvement effect either on expectation of the market participants or on the fundamentals of the companies.

In terms of executive compensation, the ranking order for the maximum salary before the split-share reform is BUREA (RMB 7.44 million), SOECG (RMB 5.15 million), BLOCK (RMB 5.12 million), SOELG (RMB 2.75 million), and COLLECT (RMB 2.22 million), with the highest mean in SOECG (RMB 0.24 million) and lowest in SOELG (RMB 0.16 million). After the reform, COLLECT has the highest figure (RMB 53.99 million), and SOELG still has the lowest. The ranking order for the mean of compensation is SOECG (RMB 0.47 million), BUREA, SOELG, COLLECT, and BLOCK (RMB 0.25 million), with the most volatile in SOECG and BLOCK. These figures show that the split-share reform has facilitated the growth of executive compensation and that the reform effect is stronger for the incentive mechanism (in terms of monetary compensation) in list companies with state-owned controlling shareholders than private companies.

Among industries, the annual salary ranking order is finance and insurance, real estate, commerce, public affairs, comprehensive businesses, and manufacturing. The highest and average executive compensation (RMB 54 million and RMB 1.65 million) in finance and insurance industry by far exceeds that of the other industry. In coastal areas like Shanghai and Shenzhen, the executive compensation on average is about RMB 0.29 million, much higher than the RMB 0.15 million in central and west areas. Compensation level is imbalanced within industries and geographic regions.

## 2. *Model analysis*

In order to test the impact of the split-share structure reform on corporate performance and executive compensation in different types of companies, we have to analyze the model first. The reform began from April, 2005, and sent a very important market signal which is fair competition between different types of ownership. Thus, we select the year 2005 and the actual reform date as the dividing lines and conduct regression analysis on the executive compensation levels of companies with different types of controlling shareholders. The result is shown in Table 2 and Table 3.

We use return of sales (ROS), earnings per share (PES), return of equity market (RET), return of assets (ROA), respectively in the model to regress with the compensation values. We see from the table that the reform signal variable using the year 2005 has positive

correlation coefficient towards executive compensation within 1% significance level. When using the actual reform date as the reform variable, the correlation is not significant with RET. This shows that the signaling effect of the announcement of the split-share structure reform in 2005 is stronger than the actual implementation effect on executive compensation, which means the split-share structure reform in China, as an event, is remarkable in improving corporate executive compensation governance for the listed companies in the capital markets. In the models, executive compensation variables all have significant positive correlation with the performance variables within 0.1% significance level, which reflects that listed companies in China have started to adopt the compensation mechanism based on corporate performance since the reform. This conclusion supports Assumption 1.

Table 2: Relationship between executive compensation and corporate performance in different types of listed companies (year 2005 as dividing line)

Variable	PERF=ROS (N=6878)	PERF=EPS (N=6851)	PERF=RET (N=6968)	PERF=ROA (N=6963)
Intercept	18.05(13.43)***	17.79(13.34)***	19.32(18.67)***	17.63(13.3)***
a_2005	5.44(8.04)***	4.55(6.67)***	1.70(3.07)**	5.12(7.55)***
asset	2.52e-06(22.5)***	2.4e-06(21.6)***	1.69e-06(18.5)***	2.51e-06(22.6)***
ROS	0.06(3.13)**			
EPS		5.38(4.23)***		
RET			11.03(9.74)***	
ROA				0.37(5.13)***
PERF.2005	0.07(3.08)**	7.01(5.72)***	6.04(5.22)***	0.26(3.49)***
collect	0.78(0.55)	0.36(0.26)	2.11(1.98)*	1.21(0.87)
soecg	3.41(2.32)*	1.98(1.34)	3.52(3.2)***	2.78(1.91)
soelg	2.09(2.11)*	1.37(1.4)	1.31(1.79)	2.55(2.48)*
block	1.81(2.44)*	1.50(2.01)*	1.65(2.91)**	1.50(2.02)*
PERF.collect	0.01(0.16)	10.36(3.63)***	4.58(2.26)*	0.25(1.71)
PERF.soecg	0.01(0.03)	11.46(3.61)***	5.94(3.95)***	0.24(1.42)
PERF.soelg	0.03(0.82)	3.96(2.08)*	1.18(0.94)	0.12(0.78)
PERF.block	0.05(2.23)*	4.46(3.2)***	0.01(0.02)	0.26(2.96)**
hhi5	6.93(2.64)**	8.09(3.1)**	5.06(2.55)*	8.98(3.44)***
z	0.001(2.3)*	0.01(1.83)	0.01(2.47)*	0.01(1.71)
indepr	13.12(4.9)***	12.45(4.71)***	15.3(7.56)***	13.09(4.97)***
area variable	included	included	included	included
industry variable	included	included	included	included
Adjusted-R <sup>2</sup>	0.16	0.18	0.18	0.17

Dependant variable is executive compensation which is represented by the average annual salary of the top 3 executive of the listed companies. a\_2005 is the dummy variable that takes the year 2005 as the dividing line of the split-share structure reform. For samples before 2005, a\_2005=0; and for sample after 2005, a\_2005=1; assets is the measurement of company scale; PERF.2005, PERF.collect, PERF.soecg, PERF.soelg and PERF.block are interactive variables of corporate performance with time and dummy variables of the types of controlling shareholders in listed companies; area is the dummy variable for regions which include Shanghai and Shenzhen, coastal area (except Shanghai and Shenzhen), central area, and northwest area; controlled variable for industry includes manufacturing, commerce, public affairs, real estate, finance and insurance, and comprehensive businesses. \*p<0.05; \*\* p<0.01; \*\*\* p<0.001.

For different types of performance variables, company scale has constant significant

positive correlation with executive compensation, which is consistent with other countries' reality and Firth et. el (2006)'s conclusion on China before 2000. In terms of controlled variable for region, compared with coastal areas like Shanghai and Shenzhen, other regions also have significant performance-oriented executive compensation. In terms of industries, compared with manufacturing, only commerce and finance & insurance have significant difference in the compensation payment mechanism. The top 5 shareholders' ownership concentration ratios that we add in the models have significant positive correlation with the compensation. The Z-index has significant positive correlation within 5% significance level only when using ROS and RET. This means that the higher ownership concentration ratio in China, the higher compensation executives receive, which helps to select executives with more management capability. The independent director ratio's contribution to compensation incentive is positive within 0.1% significance level, which shows that under the split-share reform, the independent director system in China has a clear effect on solving the incentive deficiency in the executive compensation mechanism.

Table 3: Relationship between executive compensation and corporate performance in different types of listed companies  
(actual reform date as dividing line)

Variable	PERF=ROS (N=6878)	PERF=EPS (N=6851)	PERF=RET (N=6968)	PERF=ROA (N=6963)
Intercept	17.82(13.24)***	17.74(13.33)***	19.36(18.78)***	17.43(13.13)***
a_date	5.46(7.1)***	2.65(3.28)***	0.97(1.38)	4.71(6)***
asset	2.52e-06(22.52)***	2.38e-06(21.51)***	1.7e-06(18.56)***	2.52e-06(22.74)***
ROS	0.06(3.33)***			
EPS		4.41(3.65)***		
RET			11.3(11.36)***	
ROA				0.37(5.36)***
PERF.date	0.12(3.25)***	14.43(8.56)***	6.69(6.24)***	0.36(3.84)***
collect	0.73(0.52)	0.26(0.19)	2.11(1.97)*	1.10(0.78)
soecg	3.45(2.36)*	1.80(1.22)	3.57(3.25)***	2.72(1.86)
soelg	2.08(2.1)*	1.45(1.48)	1.31(1.8)	2.56(2.49)*
block	1.96(2.64)**	1.93(2.58)**	1.65(2.92)**	1.74(2.35)*
PERF.collect	0.01(0.26)	10.90(3.83)***	4.58(2.26)*	0.23(1.6)
PERF.soecg	0.004(0.06)	12.64(3.98)***	5.99(3.98)***	0.26(1.55)
PERF.soelg	0.04(0.93)	3.30(1.76)	1.26(0.99)	0.11(0.73)
PERF.block	0.05(2.13)*	2.68(1.9)	0.01(0.02)	0.23(2.7)**
hhi5	6.56(2.49)*	7.86(3.01)**	5.85(2.94)**	8.70(3.31)***
z	0.01(2.42)*	0.01(1.89)	0.01(2.39)*	0.01(1.85)
indepr	15.48(5.97)***	15.00(5.88)***	17.41(8.87)***	15.70(6.15)***
area variable	included	included	included	included
industry variable	included	included	included	included
Adjusted-R <sup>2</sup>	0.16	0.18	0.18	0.17

a\_date is the dummy variable that takes the actual date of reform of the listed companies as dividing line. For samples before this date, a\_date=0; and for sample after this date, a\_date=1. \*p<0.05; \*\* p<0.01; \*\*\* p<0.001

In terms of interactive effect of ownership type with performance, when using year 2005 as the reform signal variable, and EPS as performance variable, the correlation coefficients

are all significantly positive. This shows that listed companies, whether SOECG, SOELG, or BLOCK, are ready to practice compensation incentive plans based on the stock market performance of the companies. So the reality has completely changed from Firth et al. (2006)'s conclusion that only private and foreign companies pay attention to the compensation incentive plan based on corporate performance before 2000. For the other performance indicators, BLOCK has significant positive interactive coefficients with ROS and ROA, and so with SOECG and COLLECT when using RET. This shows that only private-controlled companies consider both corporate operating and market performance when implementing executive incentive plans, while the market response of corporate performance remains the key to the executive incentive in companies with state background.

When using the actual reform date as the reform signal variable, the interactive items of performance with BLOCK have positive correlation with the performance variables (ROS, ROA) within 5% significance level, and EPS within 10% significance level. The correlation is also positive for COLLECT and SOECG with performance indicators of EPS and RET. The interactive items of SOELG have no significant positive correlation with all performance variables. So we can see that SOELG has the weakest compensative incentive system, which is consistent with the viewpoint of Firth et al. (2006). The other SOEs pay attention to the market performance and private controlled companies emphasize on positive correlation between executive compensation and corporate performance.

This shows that the split-share structure reform is mainly within China's SOEs, especially those controlled by the central government and collective shareholders. Local government has been lagging behind in terms of compensation incentive reform. Private and foreign controlled companies also have changed as much after the reform as SOEs have. In short, the split-share structure reform in general has positive effect on facilitating the compensation incentive policy in listed companies. But the actual influence on executive compensation and incentive policies is different within companies with different types of controlling shareholders, which supports assumption 2.

### *3. Sensitivity analysis of pay-performance relationship*

The sensitivity analysis of the relationship between executive compensation and corporate performance in listed companies is shown in Table 4 and Table 5. We see, in BUREA and SOECG, the changed of compensation is significantly related to market performance from both signaling and implementing effect of the reform. Compensation in SOELG only has significant relation with operating indicators, while in private-controlled companies, the relevance is only within 5% significance level. Corporate performance of all companies has significant relevance with the change of scale, except for COLLECT. One unit change of executive compensation attributes to 300,000 unit change of total assets, with 1.5 times that of market performance change. The reform, on the whole, has significant market effect.

Table 4: Performance-pay sensitivity analysis (year 2005 as dividing line)

Variable	All samples (N=5614)	BUREA (N=2653)	COLLECT (N=286)	SOECG (N=278)	SOELG (N=699)	BLOCK (N=1608)
Intercept	4.14(7.7)***	4.27(5.2)***	3.79(2.61)**	7.13(2.05)*	5.73(4.3)***	2.74(3.3)***
a_date	1.93(5)***	1.90(2.97)**	0.99(0.93)	2.16(0.87)	2.06(3.15)**	1.41(2.49)*
$\Delta$ ret	1.6(5.45)***	1.8(3.77)***	0.51(0.54)	3.38(2.11)*	1.07(1.95)	0.45(1.03)
$\Delta$ roa	0.01(0.58)	0.10(2.28)*	0.03(0.85)	0.02(0.23)	0.12(2.18)*	0.05(1.93)
$\Delta$ asset	3.28e-06 (10.92)***	2.01e-06 (2.47)*	3e-06 (0.33)	5.02e-06 (6.35)***	8.2e-06 (3.98)***	0.00 (12.51)***
area variable	included	included	included	included	included	included
Industry variable	included	included	included	included	included	included

Dependent variable is  $\Delta$ pay which represents the change of the average annual salary of the top 3 executive in listed companies. a\_2005 is the dummy variable that takes the year 2005 as the dividing line of the split-share structure reform. For samples before 2005, a\_2005=0; and for sample after 2005, a\_2005=1.  $\Delta$ asset is the change of total assets of the companies;  $\Delta$ RET and  $\Delta$ ROA represent the change of stock market return and return of total assets of the listed companies. \*p<0.05; \*\* p<0.01; \*\*\* p<0.001

Taking a deeper look at the company samples with different types of controlling shareholders, the reform variable (in Table 4) has positive correlation coefficient with compensation payment of all types of companies, and mostly with significant relevance except for COLLECT, and SOECG. When RET, as the performance indicator, changes 1.8 units, compensation in BUREA and SOECG is significantly related with 3.38 unit change. This shows inconsistency with the conclusion of Firth et al. (2006) that executive compensation is related to shareholders' wealth only in private and foreign controlled companies, which means the split-share structure reform has been effective in merge the interests of the executive and the shareholders in SOEs. When using operating performance indicator to measure corporate performance, executive compensation significantly change 0.1 and 0.12 units for each unit change of ROA in BUREA and SOELG. We see that the compensation incentive effect is more obvious when using market performance than operating performance.

Table 5: Performance-pay sensitivity analysis (actual reform date as dividing line)

Variable	All samples (N=5614)	BUREA (N=2653)	COLLECT (N=286)	SOECG (N=278)	SOELG (N=699)	BLOCK (N=1608)
Intercept	3.68(7)***	3.9(4.75)***	3.14(2.19)*	6.69(1.98)*	5.2(3.89)***	2.39(2.89)**
a_date	1.20(2.52)*	1.20(1.51)	1.32(0.97)	2.28(0.7)	0.87(1.05)	0.90(1.32)
$\Delta$ ret	1.5(4.58)***	1.66(3.16)**	0.39(0.37)	3.66(1.98)*	0.83(1.33)	0.38(0.79)
$\Delta$ roa	0.01(0.81)	0.10(2.14)*	0.03(0.84)	0.02(0.24)	0.12(2.14)*	0.05(2.14)*
$\Delta$ asset	3.28e-06 (10.91)***	2.01e-06 (2.46)*	2.48e-06 (0.28)	5.04e-06 (6.36)***	7.96e-06 (3.84)***	0.00 (12.55)***
region variable	included	included	included	included	included	included
industry variable	included	included	included	included	included	included

a\_date is the dummy variable that takes the actual date of reform of the listed companies as dividing line. For samples before this date, a\_date=0; and for sample after this date, a\_date=1. \*p<0.05; \*\* p<0.01; \*\*\* p<0.001

When using the actual reform date as dividing line (Table 5), the effect coefficient towards the change of compensation is positive but not significant, which reflects the implementation effect of the reform. That is to say, the announcement of the reform had a stronger effect on the compensation incentive of the listed companies than the actual reform. Same from the previous results, the change of executive compensation is relevant to shareholders' wealth only in BUREA and SOECG with correlation coefficients of 1.66 and 3.66 for per unit change. When using ROA as the performance indicator, the executive compensation of BUREA, SOELG, and BLOCK respectively change 0.1, 0.12 and 0.005 units for per unit change of corporate performance. In comparison with Firth et al. (2006)'s research, the overall market effect of the split-share structure reform is positive with better improvement on the compensation incentive based on market performance (stock investment return) for SOEs than companies controlled by private and foreign shareholders.

The change of CEO compensation has positive correlation with company scale within 0.1% significance level, which doesn't quite match the research conclusion of Firth et al. (2006) and Xu Liping (2005). We see that the split-share structure reform has solved the problem that companies of all scale have the same executive compensation change. However, China's stock market is still imperfect with limited corporate incentive measures and risk premium for the executives, which weakens the improvement effect on the compensation incentive based on corporate performance. Noticeably, the change of RET is positive related to the change of executive compensation in BUREA and SOECG, which means that the change of stock investment return has positive effect on executive compensation and that the impact of the reform towards the market in general is also positive.

## **V. Conclusion**

The split-share structure reform is a dividing ridge that breaks the operating regime of SOEs and private-owned companies. Before the reform, there was no market for ownership exchange. Such arrangement was to prevent the loss of state assets. The operating performance of the companies thus couldn't be measured from a market perspective and the executive compensation was basically determined based on the political and administrative status or simply performance of the sales. The split-share structure reform has sent a signal to the market that the operation of those state-controlled companies also need to be challenged by market forces and the executive compensation should be measured based on the corporate performance just like their private-owned counterparts. Furthermore, SOEs with different types of ownership background have various degrees of supervision, which makes the effect of compensation incentive reform different.

Our research shows that the split-share structure reform has significant effect on the executive compensation incentive plan based on stock price and operating performance. It brings the incentive mechanism in line with shareholders' interest. After the reform, the improvement of executive compensation incentive has helped solve the deficiency problem of incentive in China's SOEs to a large extent. Secondly, the reform has facilitated the compensation incentive system based on both operating performance (ROS and ROA) and market performance (EPS and RET), most significant for companies controlled by the state assets bureau, collective, and central government shareholders, less significant for

private-owned companies, and least for SOEs controlled by local government. Corporate governance variables such as company scale, ownership concentration rate, ratio of independent directors also have a significant positive impact on the executive compensation incentive mechanism.

Further sensitivity analysis shows that the change of compensation mostly comes from the growth of company assets. The incentive compensation is positively related to the market performance (RET) only in the companies controlled by State Assets Bureau and central government. This indicates that the incentive measures for corporate executives in China are still limited and the market performance shows it is still not ready for long-term investment. After the reform, the incentive compensation in SOEs still has weak relevance to the operating performance indicators such as ROA. Therefore, while we admit the significant positive impact of the split-share structure reform on the corporate incentive compensation, the incentive mode in the listed companies should be further diversified. It is particularly important to create an incentive compensation system in conformity with the operating and market performance of the company. Meanwhile, a better disclosure and transaction system of the stock market should be urged so that a positive impact of the reform on the improvement of corporate governance will be realized either through the operating performance of the company or through sending an investment signal to the market.

**Notes:**

- ① There are also people who are against the viewpoint, thinking that the executive compensation structure in U.S. companies nowadays are over-proportioned with stock options, bonus, dismissal wage and pension, which might cause the executives to take more risky actions and lead to the economic and financial crisis today. ([www.news.xinhuanet.com](http://www.news.xinhuanet.com)) Also, Jensen and Murphy (1990) found the performance-pay sensitivity too low in U.S. companies, so no sufficient incentive and motivation can be provided for the executives. Core (1999) held the view that corporate governance and ownership structure are important factors for the relationship between executive compensation and corporate performance. When corporate governance structure is ineffective, higher executive compensation would cause a more serious agent problem.
- ② On the split-share structure issue, the reform measures had never been stopped. On April 29, 2005, under approval of the State Council, China Security Regulatory Commission issued Notice of the Securities Association of China on the Issue Concerning the Engagement of Recommending Institutions in the Businesses Relating to the Share-trading Reform, which marks the official launch of the split-share structure reform. 4 listed companies were selected for experiments. On September 4, 2005, CSRS enacted Measures for the Administration of the Share-trading Reform of Listed Companies according to which, ban-lifting of the non-tradable shares will be exercised from the end of 2007 to 2009.
- ③ In January 2006, China Security Regulatory Commission enacted Measures for the Administration of the Equity Incentives of Listed Companies (Trail Implementation). 54 listed companies came up with their incentive plans soon afterwards and 191 companies announced to have a timetable for that. However, these incentive plans of listed companies were mostly considered unregulated. The implementation of the incentive plan was ceased during March to December, 2007. The new and more strict regulation concerning equity incentives of SOEs came out in July 2008.

- ④ After the split-share structure reform, we witnessed the improvement of market mechanism of corporate governance and executive compensation incentive. (Yang Qing, 2009) But since directors in SOEs are just acting directors who only perform supervision and don't have the right to share corporate earnings, there also has been argument on the phenomenon that executives enjoy high compensation. Some scholars indicates that property reform remains the fundamental solution to incentive constraint. (Zhang Weiyong, 1995; Lin Yifu, 1995) However, we see that in the western market where property relations remain clear, there are still prominent corporate governance problems. Also, in Singapore, corporate governance in SOEs is better than private companies. (Qian Yansong, 2009)
- ⑤ BUREA represents companies with a state assets bureau controlling shareholders. It doesn't show in the model because of the dummy variable trap
- ⑥ Among all 1328 listed companies which participated in the split-share structure reform, 235 (17.7% of the total) completed the reform in 2005, 906 (68.22%) in 2006, 114 (8.58%) in 2007, and 28 (2.11%) in 2008. 45 listed companies which account for 3.39% of the total still haven't completed the reform by the end of 2008.

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