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An evaluation of corporate governance evaluation, governance index (CGI^{NK}) and performance: Evidence from Chinese listed companies in 2003

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Abstract In the present paper, based on samples of 2003, empirical analyses of Corporate Governance Index (CGI^{NK}) and its six dimensions of listed companies in China, the index of controlling shareholders' behaviors, board governance index, top management governance index, information disclosure index, stakeholders' governance index, and supervisors committee governance index, are carried out and the results show that CGI^{NK} is positively associated with the return on assets (ROA), net assets per share (NAPS), earnings per share (EPS), operating cash flow per share (OCFPS), total assets turnover (TAV), rate of total assets growth (ITA) and Z-score. These indicate that good corporate governance mechanisms improve profitability, stock expansion ability, operating efficiency, growth and development potential, as well as financial flexibility and safety of listed companies. Corporate governance mechanisms of controlling shareholders, board of directors, top management, information disclosure, stakeholders and supervisors committee are largely responsible for decision-making and decision-execution mechanisms, and furthermore, they have direct and profound effects on the performance and value of listed companies.

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1 Introduction

With the development of corporate governance practice, evaluation of corporate governance¹ is demanded by many individuals and organizations such as investors, governments and listed companies. Studies of corporate governance by many scholars and institutions have focused on the evaluation of corporate governance status since the 1990s driven by the promotion of the subjective demands mentioned above.

Salmon (1993) put forward 22 questions to diagnose the board of directors, and a British scholar, Mueller, measured directors' ability in 11 dimensions. Later, based on the *OECD Principles of Corporate Governance*, the corporate governance principles by The California Public Employees' Retirement System (CalPERS) and the internationally acknowledged guideline and regulations, Standard and Poor's² (1998) established the *Standard and Poor's Corporate Governance Scores*, which was relatively mature in the 1990s. Demínor (1999) raised the *Corporate Governance Rating Services*, which complied with the *OECD Principles of Corporate Governance* and the corporate governance guideline by the World Bank. *The Governance Ratings of Credit Lyonnais Securities Asia* (2000) evaluated corporate governance status from eight aspects, namely corporate transparency, management constraints, independence and accountability of the board, small shareholders protection, core business, debt control, cash return of shareholders and the social responsibility of the company. Moreover, many other similar systems still exist, such as the Brunswick Warburg Appraisal System³, the Rating and Appraisal System for Information and Creditability, the World Bank's Corporate Governance Appraising System, Corporate Governance Evaluation System of the USA Institutional Investors Service (IIS), DWS Investment appraising system (DWS Investment, 2001), and the Corporate Governance Appraising Systems of Thailand, Korea, Taiwan and

¹Jackson Martindell (1950) put forward a rather complete evaluation system for corporate management capability, including corporate social contribution, services for shareholders, analyses of directors' performance, and corporate financial policies. To some extent, the analyses of directors' performance began the evaluation for corporate governance. The earliest and canonical research on appraisal of corporate governance is the first formal appraisal procedure for the board of directors designed by the USA Council of Institutional Investors (CII) in 1952.

²Standard and Poor's (1998). *Standard and Poor's Corporate Governance Scores—Criteria, Methodology and Definitions*. Available at <http://www.standardandpoors.com>.

³Brunswick UBS Warburg (2002). *Rating of corporate governance*. Available at <http://www.bubsw.com>.

Japan. Since the contents and standards of the corporate governance appraising systems have a close relationship with their external environment, these systems differ from each other under different corporate governance circumstances.

2 The evaluation index system for corporate governance mechanism

The structure and mechanism of corporate governance have been constructed in the last decade with the development of Chinese listed companies. However, there still exist many problems: what is the quality of corporate governance of Chinese listed companies? Are the rights and interests of shareholders and stakeholders well protected? How are shareholders' meetings regulated and how is the independence of listed companies guaranteed? Which ownership structure arrangements can promote corporate performance? What should the board do to form complete decision-making and monitoring mechanisms? What incentives and constraints mechanism can effectively decrease agency cost and motivate agents to work hard for the company's long-term development? How can a perfect information disclosure mechanism and a stakeholder-involved governance mechanism be constructed to improve corporate performance? Which factors determine the quality of corporate governance? What is the relationship between corporate governance and corporate performance?

Setting up a corporate governance appraisal system suitable for the governance environment in China is the key to answer and settle the questions above. By operating the system, people can learn about the corporate governance conditions of Chinese listed companies; observe and analyze the status and problems of Chinese listed companies, such as behaviors of controlling shareholders, operation of the board, incentives and constraints of management, information disclosure, stakeholders' governance and monitoring of supervisor committees; and then carry out a series of empirical studies. Therefore, the Research Center for Corporate Governance at Nankai University, based on the *Corporate Governance Codes for Listed Companies*, in compliance with the *Company Laws*, the *Security Laws*, the *Guideline for Listed Companies*, the *Guidelines and Suggestions of Corporate Governance for Listed Companies at Shanghai Stock Exchange*, the *Establishment of Independent Director Systems by Listed Companies Guiding Opinion*, the *Information Disclosure Detailed Code for the Share Transferring Company* and other laws and regulations, and by referring to the existing corporate governance appraising systems in other countries, designed the index of corporate governance appraising systems suitable for Chinese listed companies, which include six dimensions, namely, behaviors of controlling shareholders, the board governance, the top management governance, information disclosure, stakeholders' governance and the supervisor committee governance (Table 1).

Table 1 The evaluation index system of corporate governance mechanism

Basic level	Principle level	Sub-element level	Directions for the index
Evaluation indexes for governance mechanisms of listed companies	Behaviors of controlling shareholders (CGI_{SH}^{NK})	Independence of listed companies (X_{11})	Based on the analysis of the characteristics of controlling shareholders' behaviors, according to the regulation about shareholders' rights, shareholder meeting and the controlling shareholders behavior's standard of <i>Chinese listed companies governance code</i> , the index appraises behaviors of controlling shareholders of Chinese listed companies.
		Associated transaction of listed companies (X_{12})	
		Protection of small and medium shareholders (X_{13})	
	Board governance (CGI_{BOD}^{NK})	Constitution of the board (X_{21})	The board always plays a key role in the agency chain. It has been proved that a high quality board is the key and the precondition to improve corporate governance level. Based on the perspective of effective operating of the board, in order to ensure scientific decision, the index appraises the board.
		System of independent directors (X_{22})	
		Organization of the board (X_{23})	
		Operation of the board (X_{24})	
	Top management governance (CGI_{MT}^{NK})	Incentive of the directors (X_{25})	A sound incentive and constraint mechanism will spur managers to maximize stakeholders' rights while achieving their own rights, and prevent managers from invading the stakeholders' rights intentionally. An appropriate appointing and executing mechanism can stimulate managers to make scientific decisions in favor of the company's long-term development.
		Appointment of management (X_{31})	
		Executing guarantee of the management (X_{32})	
	Information disclosure (CGI_{DI}^{NK})	Incentives and constraints of the management (X_{33})	Information disclosure can not only influence investor's value judgment and decision-making, but also influence the creditors and other stakeholders' rights. Regarding information disclosure transparency as the core factor, this index mainly appraises the quality of disclosure of Chinese listed companies.
		Reliability of information disclosure (X_{41})	
		Relevancy of information disclosure (X_{42})	
		Timeliness of information disclosure (X_{43})	

Continued

Basic level	Principle level	Sub-element level	Directions for the index
	Stakeholders' governance (CGI_{STH}^{NK})	Stakeholders participation (X_{51})	The stakeholders' participation mainly appraises the extent to which stakeholders participate in corporate governance. The stakeholders' harmony reviews the harmony degree of corporations under the living and developing environment structured by stakeholders.
		Stakeholders harmony (X_{52})	
	Supervisor committee governance (CGI_{SC}^{NK})	Supervisor committee operation (X_{61})	Scientific and effective monitoring mechanism is the guarantee to carry out corporate governance objectives.
		Organization and scale of the supervisor committee (X_{62})	Targeting at "effective monitoring," we appraise the supervisor committee's governance status.
		Ability of supervisor (X_{63})	

Source: Designed by the authors.

3 The evaluation and analysis of corporate governance mechanisms

The factors and sub-factors are decided by experts scoring and analysis of hierarchical process (AHP). By considering experts' opinion, six principal factors and corresponding sub-factors are designed (Table 1), then the weight of each factors are determined after experts give the scores of principal factors and sub-factors that have passed the judge matrix and consistency test. The equations used to calculate the results and descriptive statistic analysis are listed as follows

$$CGI^{NK} = W_1 \times CGI_{SH}^{NK} + W_2 \times CGI_{BOD}^{NK} + W_3 \times CGI_{MI}^{NK} + W_4 \times CGI_{IDI}^{NK} + W_5 \times CGI_{STH}^{NK} + W_6 \times CGI_{SC}^{NK}$$

$$CGI_{SH}^{NK} = W_{11} \times X_{11} + W_{12} \times X_{12} + W_{13} \times X_{13}$$

$$CGI_{BOD}^{NK} = W_{21} \times X_{21} + W_{22} \times X_{22} + W_{23} \times X_{23} + W_{24} \times X_{24} + W_{25} \times X_{25}$$

$$CGI_{MI}^{NK} = W_{31} \times X_{31} + W_{32} \times X_{32} + W_{33} \times X_{33}$$

$$CGI_{IDI}^{NK} = W_{41} \times X_{41} + W_{42} \times X_{42} + W_{43} \times X_{43}$$

$$CGI_{STH}^{NK} = W_{51} \times X_{51} + W_{52} \times X_{52}$$

$$CGI_{SC}^{NK} = W_{61} \times X_{61} + W_{62} \times X_{62} + W_{63} \times X_{63}$$

We learn from the descriptive statistics in Table 2 that the mean value of CGI^{NK} of the sample companies in 2003 was 55.0224. Generally, it was better than the performance of 2002 though it was still at a low level. The corporate governance mechanisms were weak and certain differences still existed between the listed companies. The six dimensions of corporate governance mechanism of the samples in 2003 were all better than those in 2002, which suggested that the six aspects of corporate governance mechanism in China all improved to a certain extent in 2003. Among all the indexes, the mean of information disclosure was the best and its standard deviation decreased because the regulation institutions strengthened their supervising function and enacted more information disclosure rules. The board index of listed companies in 2003 was relatively low but the deviation degree decreased significantly. It is suggested that the construction of the board is still the key event in corporate governance reform in China. Additionally, the index of stakeholders' governance was relatively low, so listed companies should consider the rights of stakeholders and encourage stakeholders to take part in governance and management appropriately and effectively (Li and Tang, 2005).

Table 2 Governance mechanism and corporate governance index of listed companies

	<i>N</i>	Range	Min.	Max.	Mean	Median	Standard deviation
CGI_{SH}^{NK}	1149	71.26	20.67	91.93	56.4676	55.6000	15.78394
CGI_{BOD}^{NK}	1149	32.66	38.21	70.87	52.5994	52.7600	5.06845
CGI_{MI}^{NK}	1149	43.52	33.82	77.34	54.5964	54.3900	5.80582
CGI_{IDI}^{NK}	1149	57.09	27.72	84.81	62.2057	66.1300	11.58488
CGI_{STH}^{NK}	1149	52.81	26.12	78.93	51.1172	51.3800	9.23820
CGI_{SC}^{NK}	1149	42.32	35.43	77.75	50.4817	50.3400	6.08436
CGI^{NK}	1149	31.91	41.89	73.80	55.0224	54.7600	4.92915

Source: The Database of Research Center for Corporate Governance at Nankai University.

4 The empirical research on CGI^{NK} of listed companies

4.1 Relative analyses of the corporate governance index

As shown in Table 3, relative analysis of the corporate governance index suggests that the index of the controlling shareholders' behaviors has a positive correlation with the board governance index and the top management governance index at 1% significance level, which indicates that the controlling shareholders' governance mechanism has promoted the relationship with the board governance and top management governance mechanisms. On the one hand, the board of a company will receive commissions from the shareholders to monitor and

manage the company and take responsibilities according to the agency theory; the management team receives commissions from the board thus the preferable controlling shareholder governance mechanism can make the board and the management team more diligent. Consequently, the governance level of the board and management will be improved. On the other hand, there exists the severe phenomenon of “insider control,” so the board and the top management governance mechanisms are also important factors influencing the governance mechanism of controlling shareholders. The index of controlling shareholders’ behaviors has a positive correlation with the information disclosure index, the stakeholder governance index and the supervisor committee index at the 1% significance level. It means that the standard and validity of the controlling shareholders’ behaviors and the status of the controlling shareholders’ governance mechanism directly influence the information disclosure level, stakeholder governance mechanism, and supervisor committee governance mechanism. Meanwhile, the high information disclosure level, favorable stakeholder and

Table 3 Relative analyses on corporate governance index of listed companies

		CGI_{SH}^{NK}	CGI_{BOD}^{NK}	CGI_{MI}^{NK}	CGI_{IDI}^{NK}	CGI_{STH}^{NK}	CGI_{SC}^{NK}
CGI_{BOD}^{NK}	Pearson correlation	0.100**					
	Sig. (2-tailed)	0.001					
	N	1149					
CGI_{MI}^{NK}	Pearson correlation	0.127**	0.111**				
	Sig. (2-tailed)	0.000	0.000				
	N	1149	1149				
CGI_{IDI}^{NK}	Pearson correlation	0.079**	0.175**	0.272**			
	Sig. (2-tailed)	0.008	0.000	0.000			
	N	1149	1149	1149			
CGI_{STH}^{NK}	Pearson correlation	0.078**	0.254**	0.191**	0.260**		
	Sig. (2-tailed)	0.008	0.000	0.000	0.000		
	N	1149	1149	1149	1149		
CGI_{SC}^{NK}	Pearson correlation	0.119**	0.196**	0.170**	0.109**	0.032	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.273	
	N	1149	1149	1149	1149	1149	
CGI^{NK}	Pearson correlation	0.614**	0.461**	0.498**	0.684**	0.484**	0.365**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000
	N	1149	1149	1149	1149	1149	1149

Resource: The Database of Research Center for Corporate Governance at Nankai University, note that ** means significance at 0.01 level (2-tailed).

supervisor committee governance mechanism can also strengthen the monitoring and counterbalance of controlling shareholders and improve the controlling shareholders' governance.

The board governance index is positively related to the top management governance index, the stakeholder governance index, the information disclosure index and the supervisor committee governance index at 1% significance level. As the core factor of corporate governance, board governance influences the behaviors of managers, information disclosure level, the stakeholders' governance mechanism and the supervisor committee governance mechanism directly. Meanwhile, as the agency of the board, the top management governance level also impacts the board governance behaviors and performance, especially in a company controlled by the managers. Furthermore, a favorable information disclosure mechanism and supervisor committee governance can monitor and counterbalance the board, accelerate the construction of the board, and complete related governance mechanisms. At the 1% significance level, the top management governance index has a significant positive correlation with the information disclosure index, the stakeholders' governance index and the supervisor committee governance index. As the executors of strategies of the board and the managers who run corporate routine activities, management's behaviors will inevitably influence the disclosure of listed companies, the governance of stakeholders and supervisor committee, especially when facing "insider control." Meanwhile, the information disclosure mechanism, stakeholder governance and the monitoring and counterbalance effect of the supervisor committee mechanism could increase top management governance levels. The information disclosure index has a positive correlation with stakeholders' governance, and supervisor committee governance at 1% significant level. Reliable, relevant and timely information disclosure helps listed companies to be transparent in their governance and management, fulfill the need for accountability, and accept the monitoring from stakeholders and markets, all of which can stimulate listed companies to improve their stakeholders' governance level and committee governance level. The participation of the stakeholders and the fulfillment of the committee also help to regulate the behaviors of disclosure and increase the information disclosure quality of listed companies.

4.2 The modeling research on corporate governance index

Hypotheses, regression models and research variables

Although there is no commonly agreed model describing the relationship between the corporate governance mechanism, corporate governance index and corporate value, many scholars have probed the influence that corporate governance

mechanism or governance level can have on corporate performance or value from different aspects. Berle and Means (1932), Lloyd *et al.* (1986), and Leech and Leahy (1991) have studied ownership and company performance, Donaldson and Davis (1991) did a research on the hegemony structure and the company value, Kaplan (1989), Mocerck *et al.* (1988), and Hermalin and Weisbach (1991) researched management incentive and the firm value. All the studies have shown that the corporate governance mechanism and governance level have correlated closely with company value. Studies on the relationship between board governance behaviors, independent directors' governance and company's performance and value carried out by Jensen (1993), Yermack (1996) and Nikos (1999) also led to positive conclusions. The report from *Credit Lyonnais Securities Asia* ('The governance ratings of Credit Lyonnais Securities Asia', internal materials, in Chinese, 2000) further proved that the average rate of return on equity of all the listed companies was 388% while that of the first quarter of those companies with the highest scores of corporate governance evaluation was 930%. It indicates that the status quo of corporate governance is closely related to the rate of return. Klapper and Love (2002) found that corporate governance had a positive correlation with a company's market value. Newell and Wilson (2002) studied six emerging markets and found that the corporate governance status, from the worst to the best, would increase the company's value by 10–12%. Kim and Durnev (2005) used the CLSA rating system to measure corporate governance quality and concluded that companies with a better governance status had higher values⁴.

Based on the studies above, the project team for corporate governance appraisal of the Research Center for Corporate Governance at Nankai University (2004) conducted further research according to the corporate governance appraising system and the corporate governance index. The result shows that ownership structure is the factor determining the corporate governance quality, and the good corporate governance will ensure the financial safety of the company and strengthen its profitability. Thus, investors are more willing to pay a higher premium to the companies that have better corporate governance. However, the behaviors of controlling shareholders have strong negative externality and board governance needs to be improved. We can also find that the board's function of participating in strategy decisions has no effect and the governance of a supervisor committee has little influence on corporate governance's performance. Mainly based on the research done by the project team for corporate governance appraisal of the Research Center for Corporate Governance at Nankai University

⁴Kim and Durnev (2005) got the conclusion that the company value will increase by 13% while the score of corporate governance increase by 10%, correspondingly, if the company can get the similar improvement on its transparency, its value would increase by 16%.

(2004), in order to identify the influence of corporate governance on corporate value or performance, modeling study was conducted⁵. Based on the literature and practice concerning corporate governance mentioned above, the following hypotheses are proposed:

Hypothesis 1: *Ceteris paribus, the corporate governance index of a listed company has a positive relation with corporate performance or value.*

Hypothesis 2: *Ceteris paribus, the index of controlling shareholder's behaviors has a positive relation with corporate performance or value.*

Hypothesis 3: *Ceteris paribus, the board governance index is positively associated with the corporate performance or value.*

Hypothesis 4: *Ceteris paribus, the top management governance index is positively associated with the corporate performance or value.*

Hypothesis 5: *Ceteris paribus, the information disclosure index is positively associated with the corporate performance or value.*

Hypothesis 6: *Ceteris paribus, the stakeholder governance index is positively associated with the corporate performance or value.*

Hypothesis 7: *Ceteris paribus, the supervisor committee governance index is positively associated with the corporate performance or value.*

We adopted commonly-used performance and value indexes ROE, ROA, NAPS, EPS, OCFPS, TAV, ITA, Financial security and Tobin's Q value as the dependent variables, and the Corporate Governance Index, index of controlling shareholders' behaviors, board governance index, top management governance index, information disclosure index, stakeholders' governance index, and supervisor committee governance index as the independent variables (the CGI^{NK} is calculated by CGI_{SH}^{NK} , CGI_{BOD}^{NK} , CGI_{MI}^{NK} , CGI_{IDI}^{NK} , CGI_{STH}^{NK} and CGI_{SC}^{NK} , so there exists complete multicollinearity). In order to control the influence of different industries, financial leverage and company size, we adopted industry, the nature of the first shareholder, financial leverage and firm size as the controlling variables to set up regression models for testing the seven hypotheses (the variables and their definitions are listed in Table 4). The following regression models were designed:

$$\begin{aligned} Dep &= B_0 + B_1 CGI^{NK} + B_2 \sum Indus_i + B_3 \sum Type_j + B_4 DTA + B_5 LNTA + \varepsilon \\ Dep &= B_0 + B_1 CGI_{SH}^{NK} + B_2 CGI_{BOD}^{NK} + B_3 CGI_{MI}^{NK} + B_4 CGI_{IDI}^{NK} + B_5 CGI_{STH}^{NK} \\ &\quad + B_6 CGI_{SC}^{NK} + B_7 \sum Indus_i + B_8 \sum Type_j + B_9 DTA + B_{10} LNTA + \varepsilon \end{aligned}$$

⁵The data source is mainly among the following databases: (1) the database of Research Center for Corporate Governance at Nankai University; (2) CCERTM China Capital Market Database; (3) the FC-CSIDR financial database. And for their reliability we have done sample checks.

(Note: Dep presents ROE, ROA, NAPS, EPS, OCFPS, TAV, ITA, Z and QV respectively)

Table 4 Research variables list

Type	Variable	Code	Meaning and definition	
Independent variables	Experimental Variables	Corporate governance index	CGI^{NK}	Corporate governance index
		Behaviors of controlling shareholders	CGI_{SH}^{NK}	The index of controlling shareholders' behaviors
		Board governance	CGI_{BOD}^{NK}	Board governance index
		Top management governance	CGI_{MI}^{NK}	Top management governance index
		Information disclosure	CGI_{IDI}^{NK}	Information disclosure index
		Stakeholders' governance	CGI_{STH}^{NK}	Stakeholders' governance index
		Supervisor committee governance	CGI_{SC}^{NK}	Supervisor committee governance index
	Control variables	Industry	$Indus_i$	Dummy variable, 1 presents that the listed company belongs to the industry, otherwise is 0
		The nature of the first shareholder	$Type_j$	Dummy variable, 1 means the nature of the first big shareholder belongs to this kind, otherwise is 0
		Leverage	DTA	Leverage of 2003
Dependent variables	Size	LNTA	Total assets' nature logarithm of 2003	
	ROE	ROE	Return on equity of 2003	
	ROA	ROA	Return on assets of 2003	
	Stock expansion ability	NAPS	Net assets per share of 2003	
	EPS	EPS	Weighted earnings per share of 2003	
	OCFPS	OCFPS	Operating cash flow per share of 2003	
	TAV	TAV	Total assets turnover of 2003	
	ITA	ITA	Increasing rate of total assets of 2003	
	Financial security	Z	Financial security value of 2003	
	Tobin's Q	QV	Tobin's Q value of 2003	

Source: The Database of Research Center for Corporate Governance at Nankai University ($i = 1, 2, \dots, 12; j = 1, 2, \dots, 6$).

Results analyses of regression model

The results of the regression models⁶ are shown in Tables 5 and 6. Except for the models whose independent variable is ROE, all the models can pass the significance test (F-test). However, explanation ability of the models with ITA as independent variable is relatively low, as its adjusted R^2 is only 0.05.

The regression results support hypothesis 1 at the 10% significance level, which means that when the CGI^{NK} is higher, the ROE, NAPS, EPS, OCFPS, TAV,

⁶The test for multicollinearity shows that all the VIF value of the variables is below 1.50, which well demonstrates low multicollinearity influence and high reliability of regression results.

Table 5 Results of regression model (SPSS 13.0)

Model	ROE	ROA	NAPS	EPS	OCFPS	TAV	ITA	Z	QV
C	-185.962 (-1.535)	-27.615*** (-7.870)	-4.703*** (-8.094)	-1.652*** (-9.956)	-2.156*** (-5.914)	-1.173*** (-4.949)	-98.503*** (-5.104)	-4.348*** (-7.182)	3.372*** (18.641)
CGI ^{NK}	1.628 (1.037)	0.270*** (5.928)	0.032*** (4.246)	0.014*** (6.311)	0.010** (2.012)	0.013*** (4.110)	1.224*** (4.895)	0.053*** (6.674)	0.002 (0.686)
Indus, Type _j	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes No	Yes Yes	Yes Yes	Yes Yes	Yes No
DTA	-0.390* (-1.708)	-0.065*** (-9.835)	-0.022*** (-20.081)	-0.003*** (-8.096)	7.23E-005 (0.105)	1.90E-005 (0.043)	0.039 (1.070)		-0.007*** (-19.212)
LNTA	9.746 (1.189)	1.619*** (6.825)	0.576*** (14.670)	0.099*** (8.821)	0.164*** (6.657)	0.096*** (5.965)	3.852*** (2.952)	0.235*** (5.628)	-0.191*** (-15.625)
R ²	0.019	0.195	0.418	0.202	0.104	0.201	0.057	0.120	0.385
Adjusted R ²	0.001	0.180	0.407	0.187	0.088	0.186	0.039	0.105	0.374
F-stat	1.052	12.996***	38.513***	13.553***	6.248***	13.470***	3.226***	7.709***	33.616***
N	1149	1149	1149	1149	1149	1149	1149	1149	1149

Source: The Database of Research Center for Corporate Governance at Nankai University, note that *, **, *** denote the significant level at 0.10, 0.05 and 0.01 (2-tailed).

ITA and Z value are greater. Therefore, the corporate governance mechanism has a profound influence on a company's performance and value, and a favorable governance mechanism can improve corporate profitability, stock expansion ability, operating efficiency, growth ability, financial flexibility and financial security. Specifically, the empirical study results on six principal factors and sub-factors are as follows.

First, at the significance level of 10%, the regression results of the index of controlling shareholders' behaviors and the index of company's performance and value does not support hypothesis 2, which means that the controlling shareholders' governance mechanism has no significant influence on corporate value and performance statistically. However, the regression results for sub-factors of controlling shareholders' behavior suggest that ceteris paribus, the stronger the independence of a listed company is, the higher the indexes of ROA, NAPS, EPS, ITA are; the higher the evaluation value of the associated transaction is, the lower the NAPS is. But what is puzzling is that the listed companies that are good at small shareholders protection have a low Tobin's Q value.

Second, ceteris paribus, the higher the board governance index is, the higher are the OCFPS, TAV, ITA, financial security and Tobin's Q. The regression analysis on the sub-factors of the board governance index indicates that the composition of the board has no significant influence on a company's performance and value; the higher the evaluation of independent director mechanism is, the lower the ROE of a listed company is and the higher the EPS and OCTPS are; the higher the evaluation of board structure is, the higher the ROA and financial security are;

Table 6 Analysis results of regression model (SPSS 13.0)

Model	ROE	ROA	NAPS	EPS	OCFPS	TAV	ITA	Z	QV
C	-145.168 (-1.071)	-25.730*** (-6.582)	-4.516*** (-7.003)	-1.602*** (-8.730)	-2.290*** (-5.608)	-1.523*** (-5.757)	-107.118*** (-5.012)	-4.500*** (-6.733)	3.346*** (16.540)
<i>CGI_{SH}^{NK}</i>	-0.645 (-1.344)	0.007 (0.490)	-0.001 (-0.274)	-0.001 (-0.911)	0.000 (-0.180)	-0.001 (-0.818)	-0.069 (-0.913)	-0.003 (-1.284)	-7.10E-005 (-0.099)
<i>CGI_{BOD}^{NK}</i>	-1.298 (-0.825)	0.025 (0.560)	0.009 (1.185)	9.80E-005 (0.046)	0.008* (1.637)	0.006** (2.096)	0.707*** (2.848)	0.014* (1.818)	-0.004* (-1.767)
<i>CGI_{MI}^{NK}</i>	1.564 (1.126)	0.071* (1.783)	0.005 (0.688)	0.005** (2.523)	0.006 (1.356)	0.006** (2.117)	0.255 (1.166)	0.018** (2.527)	0.002 (1.176)
<i>CGI_{IDV}^{NK}</i>	1.142* (1.643)	0.110*** (5.467)	0.011*** (3.283)	0.005*** (5.733)	0.005** (2.258)	0.003** (2.215)	0.407*** (3.717)	0.014*** (4.064)	0.000 (-0.189)
<i>CGI_{STH}^{NK}</i>	1.603** (1.826)	0.051** (2.015)	0.017*** (4.100)	0.004*** (3.649)	-0.003 (-1.160)	0.001 (0.339)	0.484*** (3.495)	0.025*** (5.761)	0.000 (0.305)
<i>CGI_{SC}^{NK}</i>	-1.037 (-0.791)	-0.032 (-0.847)	-0.013** (-2.023)	0.000 (-0.129)	-0.004 (-0.993)	0.007*** (2.569)	-0.400* (-1.932)	-0.005 (-0.764)	0.006** (2.885)
Indus _i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Type _j	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
DTA	-0.279 (-1.207)	-0.061*** (-9.209)	-0.021*** (-19.049)	-0.002*** (-7.248)	0.000 (0.169)	5.50E-005 (0.122)	0.073** (2.013)		-0.007*** (-19.174)
LNTA	6.535 (0.778)	1.563*** (6.452)	0.570*** (14.271)	0.091*** (8.010)	0.165*** (6.525)	0.086*** (5.241)	3.605*** (2.722)	0.203*** (4.827)	-0.198*** (-15.823)
R ²	0.029	0.209	0.432	0.227	0.111	0.211	0.084	0.158	0.391
Adjusted R ²	0.006	0.191	0.419	0.209	0.090	0.193	0.063	0.140	0.377
F-stat	1.279	11.407***	32.866***	12.678***	5.378***	11.560***	3.968***	8.453***	27.756***
N	1149	1149	1149	1149	1149	1149	1149	1149	1149

Source: The Database of Research Center for Corporate Governance at Nankai University, note that *, **, *** denote the significant level at 0.10, 0.05 and 0.01 (2-tailed).

the higher the evaluation of board operating status is, the higher the EPS is; the higher the board incentive is, the higher the ITA is.

Third, the higher the index of top management governance is, the higher the ROA is, as well as the indexes of EPS, TAV and financial security at 10% significance level. The regression analysis on the sub-factors of the top management governance index indicates that ceteris paribus, the higher the evaluation on the mechanism of management appointing is, the higher the value of ROE is, as well as the ROA, NAPS, EPS, TAV, ITA. And we can also find that the higher the value of management executing guarantee is, the higher the Tobin's Q value is. The same relationship can be applied to the relationship between the evaluation of management incentives and constraints and financial security.

Fourth, at the 10% significance level, the higher the information disclosure index is, the higher the ROE is, as well as the ROA, NAPS, EPS, OCFPS, TAV, ITA and financial security. The regression analysis on the sub-factors of the

disclosure index suggests that *ceteris paribus*, the higher the evaluation of information disclosure reliability is, the higher the ROE of listed company is, as well as the ROA, NAPS, EPS, TAV and financial security. The information disclosure relevancy has no significant association with corporate value and performance. The evaluation of information disclosure timeliness has positive association with a listed company's ROA, NAPS, EPS, TAV, ITA, financial security and Tobin's Q value.

Fifth, at the 10% significance level, *ceteris paribus*, the higher the stakeholders index is, the higher the ROE, ROA, NAPS, EPS, ITA and the financial security are. The regression analysis on the sub-factors of the stakeholders' governance index indicates that the higher the degree of shareholders' participation is, the higher the TAV, ITA, and financial security are. The same formula can be applied to the relationship between harmony degree and ROE, ROA, NAPS, EPS, ITA and financial security, while the TAV has a negative relationship with it.

Sixth, at the 10% significance level, *ceteris paribus*, the higher the supervisors committee governance index is, the higher the TAV and Tobin's Q are; however, the lower the NAPS and ITA are. The regression analysis of the sub-factors of the committee governance index indicates that *ceteris paribus*, the operating status quo of a supervisors committee has a negative relation with ROA, NAPS, ITA and what is more, it has a positive association with Tobin's Q value. Evaluation values of committee's structure and size have a positive relation with TAV and a negative one with ROE, while the ability of the committee and Tobin's Q value are negatively related.

Additionally, the regression results for the controlling variables show that a company's industry and first shareholders' nature have an important influence on the corporate value and performance, with the exception that the first shareholder has no significant influence on OCFPS and Tobin's Q value (the results are omitted). Meanwhile, the lower the financial leverage is, the higher the ROE, ROA, NAPS, EPS and Tobin's Q value are, while the lower the ITA is. Companies that are larger in size have higher ROE, ROA, NAPS, EPS, OCFPS, TAV, ITA, financial security and lower Tobin's Q value.

5 Conclusions and suggestions

The empirical study of this paper on corporate governance mechanisms and the corporate governance index suggests that a favorable corporate governance mechanism is propitious to the improvement of corporate profitability, operating efficiency, growth ability, and the strengthening of financial flexibility and security. The corporate governance mechanisms, including controlling shareholders' governance, board governance, top management governance,

information disclosure, stakeholders' governance and supervisor committee governance, determine whether the company owns a scientific decision-making mechanism. Moreover, a decision executing mechanism will affect the corporate value and performance directly. Specifically, the following conclusions are drawn based on the empirical study on six governance principal factors and their sub-factors.

(1) The controlling shareholders' governance mechanism has no significant statistic influence on corporate value and performance. However, listed companies with greater independence have stronger profitability, stock expansion ability and growth ability. Therefore, in order to separate the property, the belongings and the finance, it is necessary for listed companies to maintain independence from controlling shareholders. Furthermore, Chinese listed companies are relatively dependent on the associated transaction with controlling shareholders to increase stock expansion ability. Listed companies' protection of small shareholders has a delayed influence⁷ on their performance and value. The Chinese stock market has no concept of small and medium shareholder protection yet. Therefore it cannot respond in time to the need for protecting small shareholders. In a word, Chinese listed companies have to regulate controlling shareholders' behavior so that they can pay attention to long-term, healthy corporate development and improving the governance performance of controlling shareholders.

(2) Improving board governance will strengthen corporate operational efficiency, growth ability, financial flexibility and security, while it has a negative influence on listed corporate current value owing to the delayed effect of the board governance or that it is a passive action to relieve the serious status under the pressure of investors and markets. Meanwhile, the composition of the board has no significant effect on corporate value and performance. A standardized and effective mechanism of an independent director system improves financial flexibility and security while having a negative association with ROE. This is because the ROE can be easily affected by earnings management⁸ and an independent director system can restrain the earnings management. The sound structures of the board help achieve earnings targets and enhance financial security, while healthy operation of the board can also improve financial flexibility. Efficient incentive to directors helps them fulfill their potential, therefore improving the growth ability of the company.

⁷The indexes of corporate performance and value are all taken at the current stage.

⁸Chen *et al.* (2001) found that the management in Chinese listed companies always manipulates the accounting profit in order to cater the ROE requirement made by the Chinese Securities Regulatory Commission (CSRC), that is to say, the ROE is easier to be twisted by earning management.

(3) A sound top management governance mechanism helps a corporation increase its profitability and operational efficiency while at the same time enhancing financial security. Whether the appointing mechanism is reasonable or not has a significant and extensive influence on profitability, stock expansion ability, operating efficiency and growth ability. The execution of management ensures an increase in corporate value. It is because to some extent, investors fund in the top management team of the company in stead of the company itself. Reasonable incentives and constraint mechanisms can improve financial security. In particular, in Chinese listed companies where there is a serious phenomenon of "insider control," the effective incentives and constraints of management can decrease the agency cost, limit the managers' short-term actions deviating from corporate interests, ensure that managers work as the core of corporate management, keep faith and honesty, fulfill their duties, comply with the code of maximizing corporate interests, and consequently improve the financial performance and operating performance.

(4) Canonical and effective information disclosure indeed improves the profitability, the NAPS, and the operational efficiency of listed companies, as well as enhancing financial elasticity and safety. However, listed companies that perform well on the profitability, the NAPS, the operational efficiency, the financial elasticity and safety would incline to disclose reliable, relevant and timely information; that is to say, there exists the problem of endogeneity in this mechanism. We find a positive relationship between the information disclosure reliability and profitability, NAPS as well as financial safety of listed companies. No significant relationship is found between information disclosure relevancy and corporate performance. However, when information disclosure is in time, the profitability, the NAPS, the operational efficiency of the listed companies, as well as financial elasticity and safety, are improved, thus enhancing the market value.

(5) More attention to the rights and interests of stakeholders and constructing stakeholder governance mechanisms help improve the profitability, the stock expansion ability, the growth ability, and the operational efficiency of the listed companies, as well as enhancing financial elasticity and safety. The same suggestions are given in domestic and overseas practice and academic literature that the stakeholder governance should be taken more into consideration and the stakeholders encouraged to participate in corporate governance and management. Moreover, stakeholder participation, as demonstrated in our empirical results, actually enhances operational efficiency, growth ability and financial safety, while at the same time, the stakeholder governance harmony is positively related to the profitability, the stock expansion ability, the growth ability and the financial safety of the listed companies. However, maximizing multiple stakeholders' interests and keeping a harmonious relationship with the stakeholders may lead to multiple destinations for the company and resource configuration decentralization, thus damaging the operational efficiency in the short run.

(6) An effective governance mechanism for a supervisors' committee may improve the operational efficiency and market value of listed companies, but owing to the fact that supervisors committees of some listed companies are merely nominal, it seems that good supervisors' committee governance would do harm to the stock expansion ability and growth ability of listed companies. We found that the existence and operation of the supervisors' committee do not positively influence the profitability, stock expansion ability and growth ability of the listed companies. However, the investors seem to believe that good supervisors' committee governance does bring high market value for the companies. So it can be concluded that although a supervisors' committee with a sound structure and reasonable scale may not help the company to achieve its profitability goals, it is helpful in improving its operational efficiency. Meanwhile, the market and investors have a keen desire for companies with a competent supervisors committee.

Additionally, our empirical investigation also demonstrated that the industry the company is in and the property of the first big shareholder greatly influence the financial safety, the performance and market value of the company, with an exception that the property of the first big shareholder does not significantly influence the cash flow per share and Tobin's Q value. We also find that low financial leverage actually improves the profitability, the stock expansion ability and market value of listed companies; however, as an important capital resource for the existence and development of a company, financial leverage also has a positive influence on the company when increasing the debt to a certain degree. The empirical results also demonstrate that large scale companies perform better on their profitability, the stock expansion ability, operational efficiency, financial elasticity and safety, while their market value is lower.

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