

Corporate governance and firm performance: Empirical evidence from China

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Abstract—This study seeks to investigate the relationship between corporate governance, measured by Corporate Governance Index (CGI) innovatively, and firm's performance measured by Firm Performance Index (FPI) creatively. The empirical approach in the study lies in constructing a comprehensive measure of the corporate governance for listed companies in the years 2007-2011. The results show a positive association between corporate governance and performance. Finally, the results present that size, leverage and industry all affect the FPI.

Keywords—corporate governance; firm performance; governance index; performance index

I. INTRODUCTION

A. Background and significance

Corporate governance has become a main subject in academic discussion as a result of the crisis during 2007-2008. Since the state-owned-enterprises reform (SOE reform) in our country, the problems of corporate governance not only perplexed a lot of parties but also made a lot of progresses. As a consequence, there should be more researches on how to evaluate the effect and what impacts the improvement of governance with the firm performance.

It is distinctive in China that state-owned and private enterprises exist together. With rapid expansion the problems in the structure of corporate governance began to significantly constrain the improvement of performance.

B. Main content

This article evaluates the governance quality of listed companies in China, to explore the relationship between governance and firm performance. Furthermore, the article wants to explore the variables of corporate governance that have the largest impact on firm performance respectively in different kind of industries. Using multiple regressions about the CGI, the results justified that good corporate governance is associated with better performance (FPI).

C. Academic fundamentals and innovations

Our research has some innovations and contributions.

Firstly, an innovative corporate governance index was built to evaluate corporate governance of listed companies in China. In existing literatures, most governance ratings, such as CGS, Deminor and CLSA, mainly focus on the ownership and the board structure, functions of general meeting of shareholders, financial transparency, and information disclosure. To shed some light on the academic field, apart

from governance structure, the new CGI considers efficiency and behavior of governance, interest protection of small shareholders. In addition to the innovative content of the index, the data and method to evaluate is quite objective, distinctive from existing specialist marking method.

Secondly, the creative FPI was built to evaluate firm performance in China. In most existing literatures, scholars evaluate performance always from one indicator, such as Tobin Q or ROE. But in order to evaluate Chinese listed corporate properly, we choose to use a comprehensive index, when compared with CGI. Most of the studies confirm a positive link between good governance practices to firm performance (Brown and Caylor, 2006).

Furthermore, the article will explore the variables of CGI that have the largest impact on FPI respectively in both kinds of proprietary rights. Weak legal institutions for governance were crucial in exacerbating the stock market (Johnson et al. 2000). Nevertheless, existing literatures rarely studied the difference between companies with different kind of proprietary rights in the impact of corporate governance. Consequently, to some extent, our research will illuminate the academic field.

II. CONSTRUCTION OF THE CHINESE LISTED CORPORATE GOVERNANCE INDEX (CGI)

A. Design of the Corporate Governance Index (CGI)

The content of CGI comprises 5 categories including total 24 binary items: the Board, Ownership structure and Shareholder rights, Supervisory board, Management, Information disclosure. The sub-Index Board evaluates the rationality of structure and the performance of operation. Ownership and Shareholders measures the ownership structure of the company, especially taking into account rights of the minority shareholders. Management measures the structure and procedure of the executive management of the company. Supervisory board assesses the structure and procedure of the supervisory board. Finally, Information disclosure measures efficiency of governance. The structure of the CGI and definition are presented in Table 1.

B. Formation specifications

Firstly, eliminate the industry factors which have little comparability. Then, take certain method to eliminate the influence of the factors mentioned above. Thirdly, control

the extremes before governance evaluating by adopting 3σ limit. Finally, standardize each variable.

TABLE I.

types of variables		variables
explanatory variable	Corporate Governance Index (CGI)	the Board, Ownership structure and Shareholder rights, Supervisory board, Management, Information disclosure
	Control Variables	Industry
		First majority shareholder
		Leverage
Dependent Variables	Firm Performance Index (FPI)	Size
		ROE, ROA, EPS, NAPS, ITA, TAV, RGR, OPG, GNI, OCFPS, OCR, SCR

III. THE EMPIRICAL STUDY

A. Data sources and sample selection

The CGI is based on the statistics companies at the Chinese Stock Exchange during the years of 2007-2011. These data were collected mainly from CSMAR and SINOFIN database. Furthermore, observations of financial companies and ST companies were eliminated. Finally, data consist of 2047 state-owned enterprises, 1862 private enterprises and 24 foreign-funded enterprises.

B. Research hypothesis

CLSA evaluated 25 emerging markets which suggested that good corporate governance were consisted with the stock price. Using a corporate governance index, Black et al. (2006) finds evidence that corporate governance is an important factor in explaining the market value of Korean public companies. Cornett et al. (2009) contends that during the recent financial crisis, firms that had better internal corporate governance tend to have higher rates of return. Overall, with a corporate governance index, most studies support the importance of firm level corporate governance. Consequently, the existing results show that corporate governance determine firm performance and value, in both developed and developing countries, and even during a financial crises. Accordingly, we hypothesized:

H1. Firm performance increases with the promotion quality of governance performance.

H2. Firm size intensifies the positive impact of corporate governance on firm performance.

H3. Leverage assuages the positive impact of corporate governance on firm performance.

H4. Nationalized companies enjoy large impact of corporate governance on firm performance.

H5. The impact of corporate governance on firm performance varies from industry to industry.

C. Variables

In the regressions a set of control variables is included following the literature. Debt ratio can improve performance by limiting managerial misbehavior, on the other hand, may

lead to asset substitution (Bebczuk, 2003). Firm size may have a negative effect if size is correlated with the exhaustion of growth, but may be positive whenever size is correlated with more diversification and less financial constraints. The first majority shareholder is a proxy faced by the productivity. Taking into account of the industrial effects, it is classified into 11 categories. The companies in those categories vary in productive technology and international trade ability.

D. Firm performance index(FPI)

The FPI consists of 3 aspects, business performance, operation capability and development ability. In order to measure the financial performance we used principal component analysis method to build FPI, based on 13 indicators, return on assets, return equity, earnings per share, net asset value per share, total assets growth rate, total assets turnover, net amount of cash flow generated from business activities, net profit margin, growth of net income, growth of profit margin, revenue growth rate, operating income cash ratio, and sales revenue cash ratio.

Variables	Mean	Median	Minimum	Maximum
ROE	0.09	0.09	-16.30	8.40
ROA	0.06	0.05	-0.44	0.88
EPS	0.38	0.29	-2.32	8.44
NAPS	3.89	3.36	-0.97	24.07
ITA	0.20	0.12	-0.60	5.49
TAV	0.70	0.59	0.00	8.92
OCFPS	37.60	37.61	19.46	52.79
NPM	0.09	0.07	-5.89	25.28
GNI	0.42	0.00	-1153.65	517.74
OPG	0.14	0.03	-460.32	210.15
RGR	0.76	0.16	-0.98	1924.53
OCR	0.06	0.07	-79.84	5.16
SCR	0.35	0.35	0.35	0.35

After winsorize process, FPI is presented as follows:

$$F_0 = 0.130X_1 + 0.082X_2 + 0.134X_3 + 0.104X_4 + 0.140X_5 + 0.022X_6 + 0.167X_7 + 0.075X_8 + 0.111X_9 + 0.103X_{10} + 0.146X_{11} + 0.156X_{12} + 0.158X_{13} \quad (1)$$

Result of performance on different kinds of enterprises, includes state-owned, private and foreign-funded enterprises. State-owned are lower than foreign-funded enterprises. The performance of private enterprises is best.

E. Model

We explore the impact of corporate governance on firm performance by estimating:

$$\text{Performance}_{i,t} = \beta_1 + \beta_2 \cdot \text{CGI}_{i,t} + \beta_3 \cdot \text{Interaction}_{i,t} + \beta_4 \cdot \text{Control}_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\text{Interaction}_{i,t} = \beta_5 \cdot \text{Size}_{i,t} \cdot \text{CGI}_{i,t} + \beta_6 \cdot \text{DebtRatio}_{i,t} \cdot \text{CGI}_{i,t} + \beta_7 \cdot \text{FSH}_{i,t} \cdot \text{CGI}_{i,t} + \beta_8 \cdot \text{Industrydummy}_{i,t} \cdot \text{CGI}_{i,t} \quad (3)$$

Where i and t refer to firm and time respectively; CGI is a vector of corporate governance measures; vector Controls include debt ratio, size, the first majority shareholder, industry dummy variables.

$$\text{Control}_{i,t} = \beta_9 \cdot \text{Size}_{i,t} + \beta_{10} \cdot \text{DebtRatio}_{i,t} + \beta_{11} \cdot \text{FSH}_{i,t} + \beta_{12} \cdot \text{Industry}_{i,t} \quad (4)$$

IV.THE RESULTS

A. descriptive statistics

In the summary statistics on the CGI and PFI variables appear in Table 3. The average of CGI is -11.8, with a minimum of -131.5 and a maximum of 331.7. The average PFI is 0, with a minimum of -9.7 and a maximum of 10.5. The standard deviation is really big, showing that the disparity among different corporate is huge. In the 11 industries, mining and real estate industry perform better than others.

TABLE II.

Variables	Mean	Median	Standard deviation
Corporate Governance Index(CGI)	2.55E-12	0.025	1.000
Firm Performance Index(FPI)	0	0	0.57

The pairwise correlation among governance and the performance and control variables can be seen in Table 3. The CGI strongly and positive correlated with FPI and most of its sub-indices. Moreover, CGI is negative correlated with each of the control variables.

TABLE III.

	CGI	SIZE	FSH	BR	FPI	ROE	ROA	EP S
CGI	1							
SIZE	-0.19164	1						
FSH	-0.13969	0.125869	1					
BR	-0.38412	0.325169	0.076836	1				
FPI	0.071738	0.219246	-0.01572	-0.03986	1			
ROE	0.02449	0.060356	0.010033	0.002849	0.507929	1		
ROA	0.165177	0.02418	-0.0431	0.32322	0.627358	0.686266	1	
EP S	0.118249	0.188522	-0.02932	0.12664	0.689764	0.34342	0.631685	1

B. corporate governance and firm performance

$$\text{Performance}_{i,t} = -0.03 + 0.11\text{CGI}_{i,t} + \text{Control}_{i,t}$$

The results show that the hypotheses are mostly buttressed. Table 6 shows the OLS regression results for firm performance. First of all, firm performance increases with the promotion quality of governance performance, and the coefficients in each model are significant. Then, firm size intensifies the positive impact of corporate governance on firm performance, and the coefficient in the model is significant. Additionally, leverage assuages the positive impact of corporate governance on firm performance, although the coefficient is not significant. Furthermore, nationalized companies enjoy large impact of corporate

governance on firm performance, although the coefficient is not significant. Last but by no means has the least, the impact of corporate governance on firm performance varied from industry to industry.

TABLE IV.

Variable	Model1 (No control variable)	Model2 (Control variable model)	Model (Interaction model)
C	0.001 (0.009)	0.038 (0.065)	0.073 (0.065)
Corporate governance	0.122** (0.009)	0.110** (0.009)	0.247** (0.066)
Firm size		1.35E-12** (2.44E-13)	5.98E-12** (5.64E-13)
Leverage		-0.099* (0.047)	-0.167** (0.047)
Property of ownership		0.037† (0.020)	0.038 (0.020)
Extractive industries		0.254** (0.087)	0.222* (0.087)
Manufacturing industry		-0.041 (0.063)	-0.071 (0.062)
Electrical Water Industry		-0.054 (0.078)	-0.076 (0.078)
Construction industry		-0.110 (0.087)	-0.133 (0.087)
Transportation industry		0.129† (0.077)	0.104 (0.079)
Information technology industry		0.018 (0.070)	-0.038 (0.071)
Wholesale and retail trade		0.085 (0.073)	0.073 (0.074)
Real estate industry		0.092 (0.070)	0.065 (0.071)
Service industry		-0.107 (0.077)	-0.124 (0.077)
Culture industry		0.063 (0.112)	-0.008 (0.117)
Integrated industry		-0.225* (0.099)	-0.218 (0.150)
Firm size*CGI			-3.16E-12** (3.43E-13)
Leverage*CGI			-0.074 (0.046)
Property of ownership*CGI			0.001 (0.021)
Extractive industries*CGI			0.090 (0.091)
Electrical Water Industry*CGI			-0.136† (0.078)
Transportation industry*CGI			-0.176* (0.080)
Information technology industry*CGI			-0.077 (0.075)
Integrated industry			-0.076 (0.121)
R-squared	0.045	0.074	0.101
Adjusted R-squared	0.045	0.071	0.094
Log likelihood	-3300.60	-3240.37	-3183.47
F-statistic	186.59	20.90	15.04
Prob (F-statistic)	0.00	0.00	0.00
Observations	3927		

Notes. All major explanatory variables are centered by mean. Period dummies were included in the models but are not reported here.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$; standard errors are in parentheses.

Among the control variable the size is positive and highly significant. While, the first majority shareholder as well as firm size variable are negative and highly significant. The significance of the debt variable may be explained by a financial crisis as companies with low debt may have reflected proper governance as a disciplining device to mitigate the incentives towards overinvestment and excessive risk-taking.

The results about firm performance show that the sub-indices of FPI with CGI are positive and significant at 1% level. In line with expectations the coefficient for the ROA, ROE and EPS is negative and highly significant. Consequently, I find that ROA, ROE and EPS can represent firm performance well. Hence, the results confirm that better governed companies are performing better than firms with lower corporate governance standards.

After further consideration of endogenous, two stage least-squares regression results show that corporate governance endogenous is a little degree. The reverse effect of the company performance on corporate governance is not obvious.

V. CONCLUSIONS

The aim of this study is to investigate the relationship between the quality of corporate governance and financial performance of the Chinese listed firms. In order to measure quality of corporate governance in our sample firms we developed a corporate governance index (CGI) based on the listed companies at the Chinese Stock Exchange during the years of 2007-2011. The data was taken from the published annual reports of the sample firms. Along with descriptive analysis, the linear multiple regression analysis was used as analysis tool.

The index based on 24 indicators includes the Board, Ownership structure and Shareholder rights, Supervisory board, Management, Information disclosure. For measuring firm performance 13 indicators including ROA, ROE, EPS, and so on are used to measure the financial performance.

The study confirms that corporate governance is an important determinant in explaining the performance and of listed companies in our country. The CGI is positively and significantly associated with FPI. Moreover, the results shows that in those listed companies, where company size is larger, perform better in general. Such results are consistent with the outcome model assuming that when companies have more assets, they tend to use them to influence the policy of governance. The study also shows that in companies with larger sizes, the impact of corporate governance is larger. So, it is necessary for larger companies to promote the level of corporate governance.

The study contributes to the literature in the field of corporate governance showing its importance, especially during the SOE reform. Different natures of property right have different performance in governance. The results show that state-owned enterprises don't perform well as private enterprises in general. This indicates that most state-owned enterprises can't govern companies individually, which interfered by government.

According to the above analysis, it's necessary to coordinate the governance mechanism in order to improve the quality of governance. For state-owned enterprises, especially the legal entity, it is proper for controlling shareholder to double as chairman of the board. Moreover, enlarging the size of the Board and Management will promote the management for company, as well as supervise managers. For private companies in China, due to the present professional manager market is still not perfectly developed, the chairman of the board should be concurrently. This is advantageous to enhance the decision efficiency, reduce the ownership concentration.

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