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Director Compensation, CEO Duality, State Ownership, and Firm Performance in China: Proof from Panel Data of Publicly Listed Enterprises from 1999 to 2020

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Abstract**—**This paper offered the primary methodical proof on how director remuneration related to enterprise earnings in listed firms in China in light of most evidence focusing on cross-sectional data or data in a short span of time. Using full economic and business panel data on China's publicly listed enterprise from 1999 to 2020 over two decades in the China Stock Market & Accounting Research database, we found statistically significant positive associations between director pay and firm performance in privately owned firms over this period, supporting the agency theory. In contrast, among the state-owned enterprises, there was a reverse relation between director compensation and firm financial performance, contributing to the existing literature. But the results also revealed that state-owned enterprises financially performed as well as private enterprises. Such findings suggested that state ownership might line up officials' career incentives with party prime concern rather than pecuniary incentives. Also, CEO duality enhanced firm performance. As such, allegiance to the party and possible advancement to an upper-level political position would motivate company directors in state-owned enterprises. On the other hand, directors in privately owned enterprises might be motivated by monetary incentives. In addition, a statistical regression model was proposed and tested to get the results of the performance of state-owned enterprises. Finally, some suggestions were made about how to improve the institutional management of government-owned corporations in China.

Keywords**—**China's listed Firm, director compensation, CEO duality, firm performance, panel analysis.

I. INTRODUCTION

CHINA began the growth of stock markets recently and stock markets were set up in Shanghai in 1990 and Shenzhen in 1991. In 1997, the Chinese Communist Party's 15th Party Congress established the shareowner system, a crux of domestic companies' reorganization, which offers the avenue and platform for the State-Owned Enterprises (SOEs) to raise funds and therefore the development of the stock market further accelerated. As of today, China's stock market become the world's 8th largest with a market capitalization of over US$550 billion [1]. The development of the stock markets was initially planned for setting an avenue for SOEs to access capital and reduce deficit. When these SOEs were publicly listed, these companies were required to authorize capital stock to the government and to other local institutions concomitantly possessed by the government alongside local governments. And therefore, the continuing supremacy of state ownership remains, and in practice, the central government still controls the ownership of most public traded companies in China [2].

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Empirical studies revealed that the relation between government ownership and firm financial performance was mixed. Qi et al. examined Shanghai Stock Exchanges-listed enterprises between 1991 and 1996 and found that government holding was associated with financial performance in a negative manner [3]. Hess et al. examined Chinese listed enterprises from 2000 to 2004 and concluded that there was a convex relationship between government holding and financial result [4]. Conversely, Sun et al. assessed Chinese publicly listed firms between 1994 and 1997 and drew the inference that government holding had a concave relationship with financial performance [5].

Directors should be responsible for the fiscal results of the SOEs and their compensation should be based on how well they manage and make decisions that enhance the fiscal results of the SOEs. When director compensation detaches from firm performance, this can cause problems for the SOEs and the Chinese society. Compensation that is not aligned with company performance is problematic and especially for SOEs that are underperforming has placed a greater burden on taxpayers.

The relation between linking director compensation and financial performance was grounded in the agency theory. There is extensive literature on director compensation and financial performance among public and private companies [6], [7]. And the usefulness of the agency theory in SOEs may be assessed using Chinese SOEs as samples in light of a paucity of studies applying this theory to study the alignment between director compensation and financial performance at SOEs.

This study adds to the current studies on the relation between director compensation and fiscal results of firms with a particular focus on Chinese SOEs. These SOEs are significant in light of their dominance in the stock markets and their contribution to the welfare of Chinese society.

II. LITERATURE REVIEW

The agency theory posits a disconnection between

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possessors, directors, and creditors would foster dispute among the primary holder and deputy [6]. The discord between the management deputy and the shareholder primary would create agency problems as the deputy's objectives are different from the shareholder primary's. In SOEs, the central authority, the primary holder delegates the operation of the company to the deputy executives, creating a primary holder-deputy relationship. Agency costs result from a disconnection between possessors and executive management, which are costs incurred to prevent the agent from diverging from the objectives of the company [7]. Mismanagement of the company's budget, engaging in substandard investment and receiving exclusive benefits are related agency costs [8]. The costs related to the deputy problem can bring down the profit of SOEs and stockholders' riches. The costs include deficient effort, tendency to build own empires, and adopt projects that offer ostensible rewards to managers but avoid risks by engaging in low-value projects [9]. For example, a study on SOEs highlighted the agency problem, including a failure to monitor the performance of management and leading to the management's participation in useless projects that benefit the executives [10]. An associated variable of interest worth investigating is CEO duality that might affect firm performance. CEO duality is defined as Chairman and General Manager Concurrently. In general, CEO duality fosters freedom in innovation but hampers corporate monitoring. A separation of Chairman and general manager enhances the independence of the Board of Directors but it will affect the innovative powers of the senior management team. Research on CEO duality has mixed results in the literature. Some studies posited a positive effect of CEO duality on firm performance [11] while others argued a negative association between duality and corporate financial performance [12]. In light of these controversial findings, it is crucial to conduct an analysis of the impacts of CEO duality on firm performance to fill this gap in the literature.

Accordingly, a plethora of researches has been examined on the alignment between director remuneration and fiscal results in both advanced and less advanced economies. Kazan examined the influence of CEO compensation (salary, bonuses, shared-based and share option income) on fiscal results (return on equity (ROE) and return on assets (ROA)) in 2016 for European firms [13]. Results showed a non-significant reverse relation utilizing multiple regression using firm's operating years, size of company, leverage, and prior twelve month's financial results as control variables. However, in another study by Conyon & He on the relation between director compensation (earning, extra payment, and allowance) and financial results (ROA) for 2104 publicly listed Mainland enterprises between 2000 and 2010, there was a statistically direct linear relation between director compensation and firm results utilizing an ordinary least square estimation and panel model [14]. Another study in Nigeria, Africa found a statistically direct linear relation for the director and financial results among ten banks on the Nigerian shares market [15]. But Kyalo & Lishenga's research on the effect of CEO pay on the fiscal results of SOEs in Kenya between 2010 and 2014 indicated a weak reverse relation between CEO compensation and fiscal result, in addition to a strong reverse relation between firm volume and fiscal results [16]. To conclude, the aforementioned empirical studies of CEO remuneration and enterprise performance showed mixed results. This study adds to the understanding by offering evidences to the relation between director compensation and financial results of SOEs by utilizing longitudinal statistics and regression models for publicly listed enterprises on the Shenzhen and Shanghai shares trading during the period between 1999 and 2020. Based on the literature, most studies reveal that the relation between director remuneration and fiscal results of companies is mixed, and therefore we propose the research question: What is the relation between director compensation and CEO duality and financial performance of SOEs and non-SOEs?

III. Methods

A. Case Inclusion

This research selected all available statistics of 1999-2020 publicly traded companies in the Shanghai and Shenzhen Stock Exchanges. The reason for choosing this period is that 1999 marks the year majority of companies started to get publicly traded in the two stock markets. And also, this is also the beginning year of data collection in the CSMAR dataset.

B. Variable Selection

Director Compensation

This paper selected the indicator "the grand remuneration of the three highest ranking directors" in the CSMAR database to reflect the director compensations.

CEO Duality

This paper selected the indicator "whether the Chairman assumes the position of the general manager" in the CSMAR database to distinguish CEO duality (non-CEO duality takes 0; CEO duality takes 1).

SOE and Non-SOE

This paper selected the indicator "state-owned shares" in the CSMAR database to distinguish SOEs (SOE takes 0; non-SOE takes 1).

Financial Performance

In general, two types of indicators are utilized to assess financial results, the market income index and the accounting index. The market income indictor measures the changes in stock price, for example Tobin's Q. Accounting indexes have been utilized to measure the enterprise's financial standing, for example ROA and ROE. In view of the situation that stock exchanges in China are nascent and the financial results are more dependable and accessible, we chose accounting indicators to indicate the enterprise's financial position. This paper chose ROE to reflect the financial position of the listed company.

Open Science Index, Economics and Management Engineering Vol:16, No:6, 2022 publications.waset.org/10012593.pdf

Income and Liabilities

The income of a company is indicated by fixed assets and net income whereas financial leverage is the ratio of asset to liability when examining company financial results in the quantitative modeling.

C. Model Construction

The paper constructed a multivariate regression model with random effects to examine the connection between director compensation and enterprise fiscal results. The basic model is: where α0 is a constant term, α1 toα7 are regression coefficients, and ε is a random disturbance term.

Model

ROE =α0 +α1*Dummy +α2*Total Asset +α3*Leverage +α4*Net Income +α5*Director Compensation +α6* CEO Duality + Ɛ

In this regression model, the variable Dummy is one that takes the value of 1 or 0 to indicate the presence or absence of an effect. Here, this Dummy variable is equal to 0 if the companies are SOEs and is equal to 1 if the companies are non-SOEs. The variable Net Income is the net income and leverage is the total debt divided by total assets. Director Compensation is the total remuneration of the three highest-rank directors. CEO duality is Chairman assumes the role of general manager. Error term is the residual error variance from the regression model.

IV. Results

A. General Statistics

This paper performed descriptive statistical examinations for all variables in the population and the results are shown in Table I.

TABLE I
DESCRIPTIVE STATISTICS

Variables	N	Mean	Min	Max	SD
ROE	77370	40154968	-1272479	1.78E+13	2.674E+10
LNTOTAL ASSET	77370	9.4426	0.00	13.52	0.63591
LNLEVERAGE	77370	-1.5582	-27.97	23.22	1.27497
LNNET INCOME	77370	25.9216	-0.42	38.21	2.63312
DIR COMP	77370	20.0938	7.58	20.0938	1.48032

Table I shows the descriptive statistical results of the study variables. Overall, the ROE is relatively high, with an average value of 40154968, the minimum value is -1272497, and the maximum value is 1.78E+13. This suggests that the earnings of publicly traded companies vary to a great extent, and the total earnings are relatively high. As regards total assets, the minimum value is 0.00, the maximum value is 13.52, and the average value is 9.4426. This suggests that the asset value of publicly traded companies fluctuates greatly, and the general asset value is quite high.

B. Analysis of Bivariate Correlation

Table II displays the findings of bivariate correlation analysis for the study variables. As shown in the table, director compensation is significantly negatively associated with firm profit at the level of 1%. At the same time, ROE is also positively related to leverage and negatively associated with assets and income at the level of 1%. The above results preliminarily indicate that CEO remuneration is negatively correlated with and possibly affect corporate income in a negative manner

TABLE II
ANALYSIS OF BIVARIATE CORRELATION

	ROE	LNASSET	LNLEVERAGE	LNINCOME	DIRCOMP
ROE	1				
LNASSET	-0.022**	1			
LNLEVEAGE	0.029**	0.176**	1		
LNINCOME	-0.003**	0.161**	-0.041**	1	
DIRCOMP	0.001	0.001	-0.001	-0.011**	1

**p < 0.01

TABLE III
EMPIRICAL FINDINGS

Variables	Full sample	SOE	Non-SOE
SOEs vs Non-SOEs	0.007 (1.138)	---	---
Director compensation	0.042**(3.087)	-0.06*(-2.285)	0.05**(3.334)
CEO Duality	0.002*(1.733)	0.007**(4.508)	0.000(-0.328)
LNASSET	-0.085**(-14.027)	-0.304**(-28.799)	-0.099**(-13.791)
LNLEVERAGE	0.098**(16.820)	0.173**(17.262)	0.115**(16.545)
LNINCOME	0.026**(4.365)	0.225**(21.454)	0.028**(3.923)
Constant	0.00**(9.234)	2.143**(12.593)	22704**(8.986)
Observations	77370	77370	77370
Adjusted R-squared	0.015	0.119	0.021
F	75.4517	172.057	89.036

**p < 0.01, *p < 0.05

C. Empirical Findings

This research used SPSS statistics to conduct multiple regression analysis on study variables affecting ROE of publicly traded enterprises in Mainland to explore the research question proposed above. In view of the special economic nature of Mainland's system, the type of company exerts huge influence on the enterprise's profitability. On the basis of all sample regression, this paper performed regression for SOEs and non-SOEs separately to guarantee the validity of this research endeavor.

From the regression findings, the paper concluded that for the full sample, the dummy variable was positive and non-statistically significant, which means that there was no significant difference between the fiscal results of SOEs and non-SOEs. The SOEs performed as well as the non-SOEs over

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the study period. Moreover, director compensation was positively associated with ROE, and leverage and corporate income were also positively correlated with ROE.

For SOEs, director compensation was negatively related to ROE, while leverage and income were positively associated with ROE. CEO duality was significantly positively associated with ROE. With regard to non-SOEs, director compensation was positively correlated with ROE but CEO duality is negative and non-significant. Based on these results, we can answer the research question above that the impact of director compensation on corporate ROE varied between SOEs and non-SOEs. For non-SOEs, the better the director compensation, the higher the corporate ROE, in contrast, for SOEs, the lower the director compensation and the greater the CEO duality, the higher the corporate profit.

V. Discussion and Conclusion

This paper collects and analyzes the evidence of China's publicly traded enterprises from 1999 to 2020 to statistically examine the impact of director compensation on firm financial result. The key discoveries are as follows: overall, director compensation was positively associated with ROE. And SOEs performed as well as non-SOEs. Secondly, under various nature of companies, director compensation in the SOEs was negatively related to corporate profit but the relation was reversed in non-SOEs. These research conclusions have enlightened us to thoroughly understand the role between director compensation and corporate financial results, and it is useful for companies to enlighten their understanding of director remuneration and their impacts on company profits. The finding in non-SOEs is in line with previous research, confirming the agency theory. Bruck et al. concluded that director remuneration directly associated with the firm financial performance [17]. Also, Wei studied 765 publicly traded Mainland enterprises and discovered a direct linear association between director incentives and financial performance [18]. Other studies concluded strong evidence that company dealings were related to director remuneration in Mainland's non-SOEs [19].

Regression findings show that there was a significant and inverse relation between director compensation and fiscal results in SOEs. The significant negative relationship implies that a low level of director compensation is associated with a high level of company profit. The mismatch between director remuneration and fiscal result could result in declining business production of these SOEs, undermining the key maxim of the agency theory but CEO duality enhanced corporate performance. Interventions by the Chinese state and well-grounded pay policies are mandatory so that the relation between pay and business production moves in tandem and power should be centralized in the hands of the CEO so as to enhance strong leadership and strong corporate performance. This would enhance adhesion to the pay-performance mechanism and the state authority should step in as and when needed to reform the compensation system for the directors in SOEs. Additionally, this study found that CEO duality enhanced firm performance among SOEs. This indicates that CEO duality is required to enhance conformity and encourage firm performance [20] as it facilitated faster response to adverse external conditions [21]. Therefore, it is essential for strong firm leadership and power centralized in CEO among SOEs.

In China, market capitalization still comprises of 80% of SOEs and the state is the key shareholder. The central or local government directly appointed the board of directors to serve on multiple committees. The party secretary, who wields ideological control over the board of directors and the enterprises, led the supervisory board and the party committee. As such, the party controls the SOEs through its power to appoint, transfer, and removes the directors [22]. Director compensation is usually grounded on the civil service pay scale that rewards according the difference in locality, nature of industry, and years of services [23]. Also, the communist mantra advocates equality in payment and there are regulatory ceilings on the employees' compensation. Share options and equity compensation are scarce but the directors are remunerated according to incentives including accommodation supplement and illegal income that does not appear on the financial statement and self-dealings happen [24]. Financial incentives are not deployed to align directors' and the central government interests in a bid to improve company performance. In line with the anti-corruption campaign, the central government reduced executive pay by up to 50% in 2015. Officials argue that company executives receive other incentives like stable career and housing benefits. Yet these benefits rarely translate into the impetus for better individual performance. Rather, reducing salaries may promote corrupt behavior [24].

This study endorses implications with respect to authorities going through reform in developing economies like China. A key implication is to designate policy reforms to align governance issues and executive compensation in a bid to facilitate the effective functioning of the corporations and safeguard the interest of the shareholders. An example is stock options are desirable and a majority part of remuneration should be based on stock options to ensure the alignment of interest between the director and shareholders. Governance reform should be instituted: (1) a transparent and independent board should assume the responsibility of remuneration and nomination of key officials; (2) ownership by directors and executives should be encouraged when considering the remuneration policies; (3) With the exception of CEO duality that enhances corporate performance, power concentration should be discouraged to prevent the instance of corruption. Finally, it is desirable to institute reform so that the employment of top executives should be tie to firm performance to ensure the match of interests between directors and stockholders.

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