The impact of State Ownership on Earning Quality:

A Comparison Between Private-owned Enterprises and

State-owned Enterprises in China

by

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Abstract

For most countries that want to transition from a planned economy to a market one, one of the most important characteristics is to privatize its state-owned enterprises (SOEs) and turn them into private-owned enterprises (POEs). Since the implementation of Deng Xiaoping's reform and opening up policy in the late 1970s, the number of POEs in China has grown substantially to reverse the absolute dominance of SOEs during the social restructuring in 1956. The co-existence and competition between POEs and SOEs in today's China provides an ideal setting to examine the impact of state ownership on earning quality, which is one of the most important yet less investigated issues in accounting literature. This paper seeks to analyze how state ownership improves or impairs earning quality by comparing a list of Chinese SOEs and POEs. The finding reveals that SOEs have lower earning quality than POEs in all of the three industries studied. This paper also offers two possible explanations for the result, the first one being inefficiency and the second one being corruption. Through this empirical analysis, the author hopes that SOE management can be further aware of the quality of their earning reports and make improvements accordingly.

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1. Introduction

Existing literature has indicated both theoretically and empirically that ownership structure plays a significant role in forming corporate governance and enterprise performance. Some people believe that state ownership is a major cause of corporate inefficiency due to factors such as bureaucratic control, political objectives and corruption. Xu and Wang (1999) find that the firm's profitability is negatively correlated with government ownership and positively correlated with the fraction of legal person shares. Li and Wu (2002) also argue that diversification of state ownership, including privatization, has a consistent and economically significant impact on improving the performance of state enterprises. However, other people have casted doubt on the common belief that private ownership suggests better performance. Wang and Judge (2011) claim that no significant improvements in firm performance have been observed in China after decades of privatization. Therefore, they believe that nothing is intrinsically inefficient with state ownership and that internal incentives to managers have a more significant impact on firm performance than private ownership does.

Apart from the controversy of ownership structure on enterprise performance, a less investigated issue is the impact of corporate ownership on earning quality. Earnings management, the use of accounting techniques to present an overly positive view of a company's business activities, is one of the most common practices that impair earning quality. Top managers, with the mission to maximize shareholders' value and meet their expectation on the financial performance of the company, often use non-cash accruals to smooth out fluctuations in earnings and present more consistent profits so that they could earn more credit for themselves. While prior studies have investigated how different types of ownership, including private equity sponsorship (Katz 2009), founding family ownership (Wang 2006) and ownership concentration

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(Fan and Wong 2000) affect earning quality, there is less evidence in transitional economies such as China and it is not clear whether state-owned enterprises (SOEs) and private-owned enterprises (POEs) would have the same level of earning quality in their financial reports.

In this paper, I investigate the impact of state ownership on earning quality by comparing a sample of POEs and SOEs in China. This paper focuses on China instead of the United States mainly because there exist very few government owned companies in the United States while China has been breaking away from a completely state owned economy and gradually privatizing its SOEs since the late 1970s. This co-existence and competition between POEs and SOEs in China provides an ideal setting to access sufficient data and to examine the impact of state ownership. In addition, as one of the biggest emerging economy around the world, China presents an interesting insight into the corporate behavior when large-scale structural changes are taking place rapidly.

This paper analyzes in total 276 listed Chinese POEs and SOEs from 2010 to 2014 and uses Dechow and Dichev (2002) and Francis et al. (2005) models to estimate earning quality. The results indicate that Chinese POEs have better earning quality on a five-year average compared to SOEs. In particular, POEs have lower levels of discretionary components and better accrual quality. It confirms the argument that state ownership provides motivation for SOEs to engage in more accounting manipulations possibly due to corruption and inefficiency. It also supports the common belief that private ownership suggests better performance in general.

The rest of the paper is organized as follows. Part 2 provides an overview of Chinese SOEs and POEs with a focus on their different characteristics. Part 3 describes the methodology in estimating earning quality and the data. Part 4 addresses the results of regression and possible endogeneity issue. Part 5 concludes this paper and points out the challenges of this study.

2. Overview of private-owned and state-owned enterprises in China

For most countries that want to transition from a planned economy to a market one, one of the most important characteristics is to privatize its SOEs and turn them into POEs. Just like the former Soviet Union and other Eastern European countries, China has started its own version of privatization since 1979. After the completion of the socialist restructuring in 1956, POE was almost non-existent in China. However, with the implementation of Deng Xiaoping's reform and opening up policy, the number of POEs grew substantially. According to the Statistical Yearbook of China, in 1989, the total number of POE in China was 90,581. In 2015, it reached 10,677,612. The annual growth rate is 20.14%. Along with the growth of the economic size of POEs, SOEs' overall share of GDP has been decreasing for the past decades. In 1978, SOEs represented 77.63% of the overall industrial production, with almost the entire remaining portion assigned to collective-owned enterprises and little contribution from private entities; yet, by 2004 POEs took up the majority of the production and the portion coming from SOEs went down to around 30% (Lee 2009).

2.a Definition of state-owned enterprises

The firm classification system issued by the Administration for Industry and Commerce and also found in the Statistical Yearbook of China before 2010 categorizes domestic funded ownership into eight types, namely state-owned enterprises, collectively owned enterprises, shareholding cooperative enterprises, joint-operation enterprises, limited liability corporations, shareholding corporations, private enterprise and others. However, the "state-owned enterprises" here follow a narrow definition that includes only wholly state-funded firms and does not cover the ownership forms of share-holding cooperative enterprises, joint-operation enterprises, limited

liability corporations, or shareholding corporations, whose majority shares are owned by the government, public organizations, or the SOEs themselves.

In this paper, a different firm classification system is adopted by tracking ownership hierarchy of the largest shareholders to identify an actual owner, which results in a simpler classification of four ownership types, state-owned companies; private-owned companies; collective-owned companies and foreign companies. More specifically, a state-owned enterprise or SOE in the following sections will refer to a company whose actual owner is the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council or the Asset Supervision and Administration Commission of the local government. Similarly, a private-owned enterprise or POE will refer to a company whose actual owner(s) is (are) legal individual(s).

There are several reasons for using this classification method instead of the one issued by the Administration for Industry and Commerce: first of all, by following this broader definition, an SOE will include not only firms that are wholly funded by central or local governments, but also state-holding enterprises whose majority shares belong to the government, which fully reflects the process of privatization reform since the mid-1990s. Second of all, the ownership hierarchy for Chinese listed companies is very easy to access through online database, thus avoiding the difficulty in finding consistent information that tells about a company's original source of funding. Lastly, while the Statistical Yearbook of China still uses the narrow definition of SOE to record the number of state-funded enterprises, it has started to add the statistics classified by actual ownership since 2010. Therefore, the author believes that this ownership classification system of four categories is gaining wider recognition from both academia and real life practices.

3. Methodology and Data

The estimation of earning quality has been one of the most important topics in the financial accounting literature that talks about earning management. The introduction of Jones' abnormal accrual model in 1991 is considered to be the starting point and also one of the driving factors of the earning quality research. Being a great advancement over prior models, the Jones (1991) model is generally accepted as the fundamental measure of abnormal accruals in the earning quality literature. Accruals equal to earnings minus cash from operations. Despite the fact that accrual management may lead to a scrutiny from regulatory departments, most earning management is still achieved through a manipulation of accruals because they are very subjective to human judgments and thus easy to tamper with (Zarowin 2015). Therefore, modeling the accrual process becomes a central part of quantifying and estimating earning quality.

One of the most important steps in modeling the accrual process is to distinguish *abnormal* or *discretionary* accruals from *normal* or *nondiscretionary* accruals. Normal accruals usually capture adjustments that show a company's fundamental performance and are thus considered to be a function of the company's intrinsic characteristics such as industry, business model, and so on; while abnormal accruals usually capture misrepresentations caused by the abuse of accounting techniques and are thus considered to be an impairment to earning quality. Since the abnormal accruals are hard to observe, researchers often attempt to model normal accruals first and measure the abnormal components in the error terms. For instance, the Jones (1991) model describes accruals as a function of sales growth and PPE:

$$Accrual_t = \propto + \beta_1 \Delta Rev + \beta_2 PPE_t + \varepsilon_t$$

where the fitted part of the model represents normal accruals and the error term ε_t represents the firm's discretionary accruals due to manipulation.

3.a Earning quality Using Dechow and Dechev (2002) and Francis et al. (2005) models

While the Jones (1991) model has been widely used in a lot of earning quality research, it still has a lot of limitations. As pointed out by Dechow et al. (2010), sales growth and investment in PPE only explain 10% of the variations in accruals, leaving the model with poor ability to separate abnormal accruals because normal accruals are likely to have been included as a part of the residual and labeled abnormal. In addition, Dechow et al. (2010) also indicate that the Jones model (1991) is subject to both Type I and Type II errors when tested against the null hypothesis of zero discretionary accruals, which provides further justification for this paper to use the improved accrual models by Dechow and Dichev (2002) and Francis et al. (2005).

The Dechow and Dichev approach estimates working capital accruals as a function of past, present and future cash flows because accruals anticipate future cash payments and reverse when cash previously recognized in accruals is received (Dechow et al. 2010). Instead of focusing on long-term accruals, the model attempts to model short-term working capital accruals as well as their relation to cash flow:

$$\Delta WC = \alpha - \beta_1 CFO_{t-1} + \beta_2 CFO_t - \beta_3 CFO_{t+1} - \varepsilon_t$$

where working capital is measured by the difference between current assets and current liabilities, CFO is the operating cash flow of the year, t is the year subscript and ε_t measures the extent of accrual "errors". The standard deviation of the residuals from this model can be regarded as a proxy for earning quality. Higher standard deviation signals less persistent earnings, more volatile cash flows and larger accruals; thus the earning quality is lower. The R-squares from this approach are higher than the Jones (1991) model: 47% at the firm level, 34% at the industry level and 29% at the pooled level.

The Francis et al. (2005) approach is a modified and extended version of the Dechow and Dichev (2002) model. In addition to the lagged, current and future values of operating cash flows, the Francis et al. (2005) model takes into consideration growth in revenue in order to reflect firm performance. They also add PPE that expands the model to a broader measure of accruals with deprecation:

$$TCA_T = \alpha + \beta_1 CFO_{t-1} - \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta Rev_t + \beta_5 PPE_t + \varepsilon_t$$

where total accrual is measured by the difference between net income and operating cash flow and t is the year subscript. For the purpose of robustness, this paper uses both models for the estimation of earning quality.

3.b Data

This paper has looked at a total of 276 Chinese listed companies and recorded data (in billion Yuan) from their 2010 to 2014 financial statements, all of which are available in the form of Excel sheet from an information terminal called Wind (the equivalent of Bloomberg in China). This paper also divides all the sample companies into three different industries, namely manufacturing industry, real estate industry and retailing industry, to eliminate the difference in earnings quality caused by industry-specific characteristics. The classification of each industry strictly follows the Guideline for the Industry Classification of Listed Companies issued by the China Securities Regulatory Commission (CSRC) in 2012.

Since earning quality changes over time due to market conditions, all the conclusions in this paper will be based on an average value of five years. That is to say, within each industry, a comparative analysis will be conducted between SOEs and POEs on the average standard deviation of residual, coefficients and R-square of five years.

4. Regression analysis

Figure 1: Earning quality comparison using Dechow and Dichev (2002) model

Dechow Model	Manufacturing	Real Estate	Retailing
POE	1.048	1.515	0.517
SOE	1.750	2.245	0.847

Figure 2: Earning quality comparison using Francis et al. (2005) model

Francis Model	Manufacturing	Real Estate	Retailing
POE	0.369	0.431	0.207
SOE	0.887	0.484	0.266

As shown in Figure 1 and Figure 2, the number in each cell represents the five-year average of standard deviations of residuals using the Dechow and Dichev (2002) and Francis et al. (2005) model respectively. For instance, 1.048 in Figure 1 denotes the average standard deviation of residuals from 2010 to 2014 based on the regression of the entire sample POEs in the manufacturing industry. According to the previous definition of earning quality, a smaller standard deviation of residuals implies better earning quality. Therefore, it is clear that POEs outperform SOEs in every industry investigated. Figure 5 and 6 in Appendix indicate that the average R-squares from the Francis et al. (2005) model are much higher than the ones from the Dechow and Dichev (2002) mostly because explaining the total level of accruals is easier than explaining change (in working capital). This also results in the lower standard deviations of residuals in the Francis et al. (2005) model in general.

One possible explanation for the lower earning quality of SOEs is inefficiency. As noted in Mi and Wang (2000), an ill-functioning managerial incentive scheme has caused SOEs to behave poorly for decades. One of the most common examples of SOEs' bad managerial incentive scheme is that SOEs usually offer very low salaries to their managers. According to a research conducted by China Daily in 1999, for every 1 billion Yuan of increased wealth to the state, the manager only gets 6490 Yuan. Consequently, agency cost, referred to the difference between the profit of a firm run by an owner-manager and that of a firm run by an agent, becomes very high and SOEs very inefficient. At the same time, the close scrutiny and strict performance evaluation from the government have put managers under great pressure to present good-looking business activities and financial results to the public. As a result of the collision between low managerial incentive and high pressure of achievement, managers become more likely to manipulate earnings and hide red flags so that they could stay in management and keep their reputation in the Communist Party.

Another explanation for the lower earning quality of SOEs is corruption. Often regarded as government agencies instead of free market players, SOEs produce more political goods than consumer goods. According to the 1998 China Entrepreneurial Growth and Development Report that surveys 2415 enterprises in 31 provinces, 90% of SOE administrators are directly appointed by their superior government official. In addition, according to Mi and Wang (2000), investment decisions made by government accounted for 55.6% of the total decisions and those subject to government's approval accounted for another 21.2%. This allows politicians to manipulate the SOEs' performance through the managers they appointed at their own will. For instance, officials could ask managers to boost SOEs' financial positions and create an illusion of a good economy so that they could earn more votes from their electorates.

4.a Endogeneity challenge

While the regression results indicate consistently that POEs have lower standard deviation of residuals and thus higher earning quality than SOEs, definite causal relationship can not be made without having sufficient evidence to prove that the conclusion does not have an endogeneity and self selection issue. An endogeneity problem occurs when an independent variable is correlated with the error term, causing the causal relationship between the dependent variable and the independent variable(s) to be invalid. For instance, if firms were able to choose their ownership structure, it could be that firms with higher or lower earning quality would choose to become POEs or SOEs. In this case, it is not the organizational form that affects the earning quality; instead, it just happens that firms with different levels of earning quality choose to have different organizational form.

One of the arguments to mitigate this challenge is that the switches from SOEs to POEs or vice versa are usually imposed by the government as opposed to being chosen by the companies themselves. In fact, changing ownership structure between SOE and POE China is very restrictive. In most cases, only the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council or the Asset Supervision and Administration Commission of the local government are able to establish an SOE, suggesting that the transition from POE to SOE is really rare. In other cases, private enterprises can be acquired by state-owned enterprises but they will no longer operate as a separate entity. The transition from SOE to POE, on the other hand, has always been a part of government's economic policy, thus it is exogenous and can be set aside.

5. Conclusion

The results reveal that SOEs should pay more attention to their earning quality so that the market can be more informed of their business activities and financial positions. It also provides policy makers with empirical evidence that more regulations and rules should be made to ensure that SOEs' earning quality catch up with that of POEs. However, the embedded historical development and characteristics of SOEs have made it hard for SOEs to break away from inefficiency and corruption and become free market players. Therefore, to improve SOEs' earning quality, the government will have to increase their efficiency by eliminating political interference in SOEs business activities and strengthening managerial incentive scheme to reduce agency costs.

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7. Appendix

Figure 3: Standard Deviation of Residual 2010-2014 using Dechow and Dichev (2002) model

	Manufacturing Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	0.830	0.869	1.219	1.069	1.255
SOE	1.725	1.753	1.893	1.526	1.855

	Real Estate Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	1.029	2.374	1.410	1.357	1.403
SOE	1.352	1.709	1.808	3.434	2.920

	Retailing Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	0.437	0.315	0.533	0.433	0.867
SOE	0.731	1.812	0.440	0.501	0.753

Figure 4: Standard Deviation of Residual 2010-2014 using Francis et al. (2005) model

	Manufacturing Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	0.249	0.284	0.355	0.430	0.528
SOE	0.711	0.686	1.456	0.793	0.790

	Real Estate Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	0.219	0.317	0.398	0.697	0.523
SOE	0.348	0.376	0.413	0.558	0.726

	Retailing Industry				
	2010	**2011**	**2012**	**2013**	**2014**
POE	0.115	0.172	0.154	0.282	0.310
SOE	0.250	0.377	0.205	0.285	0.213

Figure 5: Average Coefficient and R-square 2010-2014 using Dechow and Dichev (2002) model

	Manufacturing Industry			
	CFO t-1	CFO t	CFO t+1	R-square
POE	0.331	-0.585	0.232	0.131
SOE	0.183	-0.089	0.301	0.608

	Real Estate Industry			
	CFO t-1	CFO t	CFO t+1	R-square
POE	0.012	-0.639	-0.225	0.476
SOE	-0.021	-0.845	0.051	0.637

	Retailing Industry			
	CFO t-1	CFO t	CFO t+1	R-square
POE	-0.080	-0.117	0.185	0.410
SOE	0.147	-0.168	-0.020	0.136

Figure 6: Average Coefficient and R-square 2010-2014 using Francis et al. (2005) model

	Manufacturing Industry					
	CFO t-1	CFO t	CFO t+1	Δ Rev t	PPE t	R-square
POE	0.148	-0.775	0.133	0.068	-0.010	0.723
SOE	0.315	-0.501	0.366	0.123	-0.142	0.829

	Real Estate Industry					
	CFO t-1	CFO t	CFO t+1	Δ Rev t	PPE t	R-square
POE	-0.002	-1.035	0.029	0.185	0.425	0.951
SOE	0.029	-1.074	0.015	0.371	0.259	0.971

	Retailing Industry					
	CFO t-1	CFO t	CFO t+1	Δ Rev t	PPE t	R-square
POE	0.131	-0.903	0.048	0.150	-0.001	0.873
SOE	0.201	-0.969	0.014	0.105	0.033	0.832