

# On the Necessity of Diversified Ownership Reform of State-owned Monopolistic Enterprises from the Perspective of Real Earnings Management

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**Abstract.** 2020 is a crucial year for the reform of state-owned enterprises. In order to promote the balanced development of national economy and deepen the market-oriented reform of state-owned enterprises, it is the top priority in the diversified ownership reform to break the monopoly barriers of state-owned enterprises. Market-oriented reform, which is conducive to exerting the market's supervisory effect, can play a favourable part in reducing the manipulation of real earnings management and improving the corporate governance capabilities of state-owned enterprises. Therefore, from the perspective of real earnings management, empirical analysis is conducted in this paper to demonstrate that there is a significantly positive correlation between the monopoly power of state-run enterprises and real earnings management. It is found through case analysis that diversified ownership reform of state-run enterprises is conducive to breaking the monopoly barriers of state-owned enterprises, reducing monopoly power, improving corporate governance as well as lowering the manipulation of real earnings management.

## 1 Introduction

In recent years, the vertical structure of “state-run enterprises monopolizing in the upstream and private enterprises competing in the downstream” has gradually become a hot topic among numerous scholars. Most of those in the upstream are state-owned enterprises featuring natural or administrative monopoly, while most of those in the downstream are private enterprises characterised by market-oriented competition. The monopoly barrier resulted from the vertical structure enables the upstream industries to be free of the interference of the downstream market competition; on the other hand, it holds back the downstream industries from developing into those in the upstream, which hinders the development of national economy. The diversified ownership reform of state-owned enterprises means to introduce capital of private enterprises to state-run ones, take the advantages of the private enterprises into full play and break the monopoly barriers, generating market-oriented competition in the upstream industries. In this paper, the necessity of diversified ownership reform of state-owned monopolistic enterprises is elaborated based on social welfare (Ruiming Liu & Lei Shi, 2011)<sup>1</sup> and production technology (Yongjin Wang & Canlei Liu)<sup>2</sup>. There are few scholars that have discussed the necessity of diversified ownership reform of state-owned enterprises from the perspective of real earnings management. Therefore, the paper first demonstrates the influence of monopoly power of state-owned enterprises on real earnings management through

empirical study, and then, it shows through case study the effect of the reform of state-owned enterprises in reducing monopoly power, optimizing cooperate governance and lowering the manipulation of real earnings management, thus demonstrating the necessity of diversified ownership reform of state-owned enterprises.

## 2 Monopoly power and real earnings management

### 2.1 Theoretical analysis

Generally speaking, there are two types of monopolies, namely, natural monopoly and government monopoly. Natural monopoly refers to the phenomenon that a very small number of enterprises producing certain kinds of commodities due to the scarcity of natural resources. Administrative monopoly, which accounts for a large percentage in monopolistic practices in current domestic market, refers to the act of restricting competition implemented by the government and its subordinate departments through abusing administrative power. Both natural and administrative monopolies cradle the ability to obtain excess profits, which hinders the improvement of production efficiency and affects the expansion of business scale. Compared with private enterprises, state-owned enterprises are more prone to monopoly (Li et al., 2014)<sup>3</sup>, the reason of which is that senior executives of state-owned enterprises are also affiliated to administrative departments etc. The protection of the

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government results in less fierce competition and low supervision efficiency, which will probably generate problems regarding corporate governance and hinder the development of national economy.

As one of the problems in corporate governance, earnings management mainly includes accrual earnings management and real earnings management. Real earnings management is firstly defined as “the process of corporate management purposefully controlling its reporting of the financial statement to the public in order to achieve the disclosure management of relevant benefits” by SCHIPPER (1989)<sup>1</sup>, an American scholar. Real earnings management means that due to the separation of ownership and control power and based on the asymmetry theory of agency cost and information, managers adjust the real economic activities of the enterprise for certain benefits and affect the surplus of the enterprise, for example, sales manipulation, production manipulation and cost manipulation. Due to fewer competitors and lack of supervision in the industry, monopolistic enterprises are prone to the phenomenon of perfecting corporate earnings index through manipulating real activities of the enterprise. Therefore, the following hypothesis is proposed in the paper: there is a significantly positive correlation between the monopoly power of state-owned enterprises and real earnings management. The stronger the monopoly power is, the higher level of the real earnings management will be.

## 2.2 Empirical analysis

20,713 A-share enterprises between 2008 and 2018 are employed as the objects in the paper. CSMAR is the data source. Winsorization is conducted to all variables at the level of 2.5% in order to prevent the influence of the abnormal value on the results. By referring to Roychowdhury (2006)<sup>5</sup> equation, REM, the explained variable in the paper, is taken the absolute value ABSREM, which represents the level of real earnings management. The bigger ABSREM is, the higher the level of real earnings management will be. The equations are as

**Table 1** Definition of control variables

Control variable	Abbreviation	Operational definition
Ownership concentration	TOP5	Shareholding ratio of the top five shareholders of listed companies
Operation capacity	AT	Turnover of total capital = sales income / total assets
Company scale	SIZE	In (Total assets)
Net profit Ratio	NPM	Same-year net margin / operation revenue
Year	YEAR	Current year as the dummy variable

The following model is established in order to verify the hypothesis above:

$$ABSREM = \beta_0 + \beta_1 SLI + \beta_2 CONTROL + \varepsilon \quad (5)$$

It can be concluded from the descriptive statics in Table 2 that there are 20,713 objects in total; Maximum

follows:

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \partial_1 \frac{1}{A_{i,t-1}} + \partial_2 \frac{S_{i,t}}{A_{i,t-1}} + \partial_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \partial_4 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \partial_5 \frac{TC_{i,t}}{A_{i,t-1}} + \partial_6 \frac{EC_{i,t}}{A_{i,t-1}} + \partial_7 \frac{OC_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (1)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \partial_1 \frac{1}{A_{i,t-1}} + \partial_2 \frac{S_{i,t}}{A_{i,t-1}} + \partial_3 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \partial_4 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (2)$$

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \partial_1 \frac{1}{A_{i,t-1}} + \partial_2 \frac{S_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (3)$$

$$REM = RPROD - RCFO - RDISX \quad (4)$$

In the Equations (1) - (4) above,  $CFO_{i,t}$  is the net cash flow of Corporate i from operating activities in period t;  $PROD_{i,t}$  is the cost of production of Corporate i in period t;  $DISX_{i,t}$  is the controllable expenditure of Corporate i in period t;  $A_{i,t-1}$  is the total assets of Corporate i in period t-1;  $S_{i,t}$  is the sales revenue of Corporate i in period t;  $\Delta S_{i,t}$  is the income changes between period t and period t-1 of Corporate i;  $\Delta S_{i,t-1}$  is the income changes between period t-1 and period t-2 of Corporate i;  $TC_{i,t}$  is the various taxes and expenses of Corporate i in period t;  $EC_{i,t}$  is the cash paid to and for the employees of Corporate i in period t;  $OC_{i,t}$  is the cash related to other operating activities of Corporate i in period t.  $RCFO$  is the difference between the actual value and the predicted value of net cash flow from operating activities;  $RPROD$  is the difference between the actual value and the predicted value of production cost;  $RDISX$  is the difference between the actual value and the predicted value of controllable expenses.

Monopoly power (SLI), the explained variable, is measured by Lerner index of individual share. The higher the Lerner index is, the stronger the monopoly power will be. Ownership property (EN) is the classified variable. The number 1 and number 0 represent state-owned enterprise and private enterprise respectively. The following control variables are employed in the paper and the definitions are as follows:

and minimum of ABSREM are 0.757 and 0.005 respectively and the standard deviation is 0.17, which indicates a relatively lower dispersion degree; Maximum and minimum of SLI are 0.871 and -44.078 respectively and the standard deviation is 0.385, which demonstrates a relatively higher dispersion degree.

**Table 2** Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
ABSREM	20,713	0.168	0.17	0.005	0.757
SLI	20,713	0.098	0.385	-44.078	0.871
TOP5	20,713	0.524	0.153	0.023	0.992
AT	20,713	0.652	0.571	0.001	11.416
SIZE	20,713	22.182	1.302	15.577	28.52
NPM	20,713	0.057	0.592	-36.402	20.907

It can be seen from the pairwise correlations from Table 3 that there is a significant correlation among major variables at the level of 1%; variance inflation factor (VIF) is lower than 2, correlation coefficients are lower than 0.3,

which indicates that there is no serious multicollinearity problem. Those results lay a foundation for further analysis in the paper.

**Table 3** Pairwise correlations

Variables	ABSREM	SLI	TOP5	AT	SIZE	NPM
ABSREM	1.000					
SLI	0.031***	1.000				
TOP5	0.071***	0.082***	1.000			
AT	0.288***	-0.039***	0.037***	1.000		
SIZE	-0.026***	0.086***	0.249***	0.016**	1.000	
NPM	0.023***	0.566***	0.055***	-0.005	0.044***	1.000

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table 4 reveals the regression results by means of least square method when YEAR is controlled. There is a positive correlation that is not so significant between monopoly power and real earnings management in full sample analysis. Coefficient of SLI, the explained variable, is 0.001. In case of a state-owned enterprise, there is a significant correlation between monopoly power and real earnings management at the level of 1%, and the stronger the monopoly power of the state-owned enterprise is, the higher the level of real earnings management will be. Furthermore, SLI\*EN, the cross term of monopoly power

and ownership property is added and employed to establish the following model with the purpose of verifying the robustness of the conclusion:

$$ABSREM = \beta_0 + \beta_1 SLI + \beta_2 SLI * EN + \beta_3 CONTROL + \varepsilon. \quad (6)$$

The cross term demonstrates a positive correlation at the level of 1%, which means the state-owned enterprise plays a positive regulatory role and the conclusion is robust.

**Table 4** Regression results

	ABSREM (All Obs.)		ABSREM (If EN=1)		ABSREM (All Obs.)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
SLI	0.001	(0.003)	0.117***	(0.015)	0.014***	(0.004)
SLI*EN					0.068***	(0.010)
TOP5	0.094***	(0.010)	0.061***	(0.016)	0.076***	(0.008)
AT	0.086***	(0.003)	0.087***	(0.004)	0.085***	(0.002)
SIZE	-0.000	(0.001)	-0.006***	(0.002)	-0.007***	(0.001)
NPM	0.003	(0.002)	-0.010	(0.006)	-0.001	(0.002)
YEAR	Controlled		Controlled		Controlled	
Obs.	20,713		9,292		20,713	

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

### 3 Necessity of diversified ownership reform of state-owned enterprises

#### 3.1 Open the monopoly barriers

Reform of diversified ownership of the state-owned enterprises means to introduce capital of private enterprises to those state-owned ones and break the traditional situation which is dominated by state-run enterprises. The reform will lead to the decrease of the shareholding ratio as well as the decentralization of equity, which is conducive to the entry of shareholders of private enterprises, opening the barriers of monopolized industries and reducing the monopoly power. Therefore,

regression analysis is conducted in the paper to verify the relation between shareholding ratio and monopoly power. State-owned enterprises (EN=1) is selected as the samples and there are 9,292 observed values in total. The following model is established by considering shareholding ratios of the top 1 shareholder (TOP1) and the top 5 shareholders (TOP5) as the explaining variable, and monopoly index of individual share as the explained variable,

$$SLI = \beta_0 + \frac{\beta_1 TOP1}{TOP5} + \varepsilon \quad (7)$$

and the regression results are demonstrated in table 5. For both TOP1 and TOP5, there is a positive correlation to SLI at the level of 1%, which means the larger TOP1 and TOP5 are, the stronger the monopoly power will be; the smaller TOP1 and TOP5 are, the weaker the monopoly power will be.

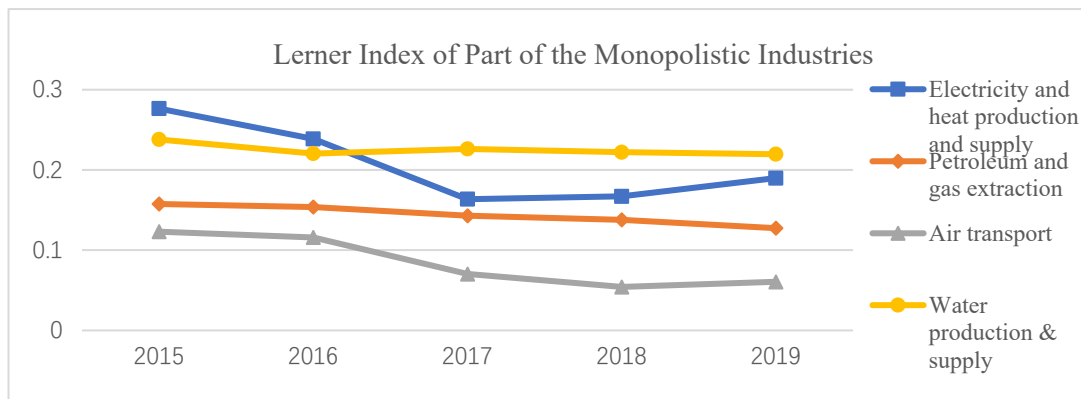
**Table 5** Regression results

	SLI		SLI	
	Coef.	Std. Err.	Coef.	Std. Err.
TOP1	0.082***	(0.016)		
TOP5			0.182***	(0.015)
IND	Controlled		Controlled	
Obs.	9,292		9,292	

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The reform of diversified ownership with the introduction of private capital is conducive to breaking the administrative barriers of industry monopoly, enabling downstream private enterprises to enter the upstream, fully expanding the scope of development of private enterprises, and providing more development opportunities for them. In recent years, reforms of state-owned enterprises are shifting to monopolized industries, and are moving toward marketization and de-administration, which is conducive to lowering the monopoly level. Currently, energy, communication, military industry, tobacco and wine, transportation and resource account for a large percentage of the monopolistic industries. Figure 1 shows the Lerner index of part of the monopolistic industries that are involved in reform of diversified ownership. It reveals that the Lerner indexes of the four monopolistic industries are on declining curves from 2015 to 2019, which indicates that

monopoly power of the four industries are reducing, the trend of free competition is picking up, and businesses of private enterprises are expending to the four industries. Among numerous enterprises with great monopoly power, the most typical one is China Eastern Airlines Group, which is a pilot of the reform. At first, China Eastern Airlines Logistics took the lead in introducing social strategic investors such as Legend Holdings, GLP and Debon etc. Later, China Eastern Airlines Group expanded the scope of the reform and focused on the development of its main business, introducing Ctrip and Delta Airlines, the most profitable airline in the United States, as shareholders. From 2016 to 2019, Lerner index of individual share of China Eastern Airlines decreased from 0.07 to 0.02, decreasing the degree of monopoly significantly.



**Figure 1** Lerner Index of Part of the Monopolistic Industries

### 3.2 Optimize corporate governance

Through introducing shares of other types, the reform of diversified ownership of state-owned enterprises aims to improve the operating efficiency of state-owned capital and reflect the innovation of state-owned asset management concept, which is shifting from operating enterprises to operating capital. The introduction of private capital not only can weaken monopoly power, but also can enable those private shareholders to have a say. Moreover, it can settle the line between government ownership and supervision. In case that economic loss is resulted from lack of corporate governance, those private shareholders can play the counterbalance role, improving corporate governance and avoiding serious real earnings management.

In the reform of diversified ownership, China Unicom perfects its governance mechanism. The diversified

ownership regulates behavior of the major shareholders in an effective manner, developing balanced governance of diversified shareholders. By introducing strategic investors, it strengthens product cooperation between enterprises and effectively improves performance. By means of equity-based incentives, it stimulates the employees to participate in and supervise corporate governance. It also perfects the market-oriented recruiting and incentive mechanism, and enhances management level of senior executives by implementing the tenure system and contract management.

## 4 Conclusions

The necessity of reform of diversified ownership of the state-owned monopolistic industries is discussed in the paper from the perspective of earnings management. There is a significantly positive correlation between

monopoly power and real earnings management in state-owned monopolistic industries, which means the greater the monopoly power is, the higher the level of the real earnings management will be. Therefore, monopoly power of the enterprise should be weakened in order to ensure the accuracy of the financial information. The reform of diversified ownership of state-owned enterprises is conducive to breaking the barriers of monopolized industries. It is also beneficial to the market-oriented reform of the state-owned enterprises, the improvement of the market's supervisory rule as well as the corporate governance, thus lowering the level of earnings management.

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