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Discussion on the Influence Mechanism of Employee Stock Ownership Plan on Company Earnings Management

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ABSTRACT: Based on the samples of A-share non-financial listed companies in Shanghai and Shenzhen from 2013 to 2019, this paper studies the impact of the implementation of employee stock ownership plan on earnings management, and finds that employee stock ownership is significantly positively correlated with the company 's accrual earnings management level. Further research shows that employee stock ownership has a significantly higher effect on upward earnings management than downward earnings management. The above research results show that the management has the motivation to ' please ' employees. In order to make more cash out when the employee stock ownership is lifted, the management conducts positive earnings management to push up the stock price, thus damaging the interests of shareholders.

1. Introduction

The employee stock ownership plan(ESOP)is a means of incentive. It was born in the United States in the 1950 s. As early as in the 1980 s, China put forward the development concept of employee stock ownership. On June 20,2014, the China Securities Regulatory Commission issued ' Guidance on the implementation of the employee stock ownership plan pilot by listed companies ' (hereinafter referred to as ' guidance '), marking the reintroduction of China 's employee stock ownership plan. By the end of 2017, 635 A-share listed companies had implemented employee stock ownership plans.

Chinese scholar Huang Yunxu et al.(2018)believed that employee stock ownership can better supervise and constrain the management 's operation and management behavior from the aspects of corporate profit-based performance indicators, equity structure, and capital structure, thus inhibiting the operation space of earnings management and effectively improving the earnings quality of enterprises. [1]However, Chen Dapeng et al.(2019)believed that due to the principal-agent problem, management may sacrifice the interests of shareholders to ' please ' employees, so as to avoid conflicts, reduce management costs and enjoy a quiet life. When there is an employee stock ownership plan, in order to ' please ' employees, management has an incentive to push up the stock price through positive earnings management, so that employees can enjoy more benefits when they unlock cash.[2] From this perspective, employee stock ownership will aggravate earnings management and reduce the quality of financial information. Therefore, the traditional view that employee stock ownership plan is a ' double-edged sword '.This paper selects China 's A-share listed companies from 2013 to 2019 as the research sample, and examines the impact of implementing employee stock ownership plans on corporate earnings management.

The second part is research hypothesis. The third part is research design. The fourth part is to provide empirical results. The last part is conclusions and policy implications.

2. Research hypothesis

The employee stock ownership plan can make the interests of employees and shareholders converge by granting shares to core employees, and alleviate the agency problem of listed companies.[3]However, with the separation of control rights and management rights, the management 's control over the company 's behavior has further increased. As a rational economic man, the conflict of interests between company executives and shareholders may induce executives to sacrifice the interests of shareholders in exchange for their own interests.[4]

The idea of employee stock ownership plan originated from the two-factor theory(Kelso and Adler，1958).The theory holds that capital and labor are the two key elements of wealth creation, but the process of industrialization makes the distribution of capital far higher than that of labor, which leads to a serious gap between the rich and the poor. Therefore, the employee stock ownership plan came into being as an institutional arrangement that can effectively combine two factors.[5]

After that, scholars investigated the implementation effect of employee stock ownership plan in practice, Combined with previous theoretical analysis and empirical literature, employee stock ownership may have positive and negative effects on corporate earnings management.

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First, employee stock ownership may exacerbate earnings management. Due to the principal-agent problem, the management may sacrifice the interests of shareholders to ' please ' employees, in order to avoid conflicts, reduce management costs, and enjoy a quiet life. When there is an employee stock ownership plan, in order to ' please ' employees, management has an incentive to push up the stock price through positive earnings management, so that employees can enjoy more benefits when they unlock cash. From this perspective, employee stock ownership will exacerbate earnings management and reduce the quality of financial information.[2] When the company 's executives participate in the employee stock ownership plan and are awarded stocks, they hope to subscribe for the stocks awarded by the employee stock ownership plan at a lower stock price, which may induce their motivation for earnings management.In addition, China 's legal system is relatively imperfect, and the supervision is small, which aggravates the self-interest behavior of executives. [4]

Thus, we assume :H1a : Employee stock ownership is positively correlated with accrued earnings management.

Second, Chen Dapeng et al. (2019) found that employee stock ownership may also inhibit corporate earnings management.[2]From the perspective of shareholders, employee stock ownership can encourage employees to strengthen their supervision of the company 's management and themselves, help solve the principal-agent problem and improve shareholder returns.[6-7]Employee stock ownership enables employees to gain a sense of ownership, which helps to enhance employee cohesion and make employees ' own interests more consistent with corporate interests (shareholder interests). Therefore, the improvement of work enthusiasm and the enhancement of supervision of management may reduce the earnings management behavior of management. In theory, the implementation of employee stock ownership plan can significantly improve the enthusiasm and efficiency of employees, and the efficiency of resource use will be greatly improved, thus promoting the continuous improvement of enterprise performance. Chinese scholar Huang Yunxu et al. (2018) believed that employee stock ownership can better supervise and constrain the management 's operation and management behavior from the aspects of corporate profit-based performance indicators, equity structure, and capital structure, thus inhibiting the operation space of earnings management and effectively improving the earnings quality of enterprises. [1]Jiang Weihua (2019) believes that the effective implementation of the employee stock ownership plan makes employees turn their work into their own form of entrepreneurship, and then the interests of employees and the interests of enterprises are converged, that is, the objective functions of the two tend to be the same. Once employees have the sense of ownership, they will obtain additional income beyond salary through more efforts and more efficient work and active and responsible supervision, and the additional income after shareholding is much higher than their own salary. Employees will devote 100 % of their efforts from procurement to sales, and the efficiency of resource allocation and use will be greatly improved. At the same time, due to the diversification of ownership structure, there will be better supervision and restriction on earnings management and other behaviors that endanger the interests of enterprises, so that the quality of corporate earnings can be effectively guaranteed. [8]Xiao Shufang et al.found that in the three quarters before the announcement date of the equity incentive plan, the management conducted downward earnings management by manipulating ' discretionary accruals ', and there was a reversal of earnings after the announcement date.[9]Based on the above analysis, this paper proposes the following assumptions :

H1b : Employee stock ownership is negatively correlated with accrued earnings management.

3. research design

3.1. Sample selection and data sources

This paper selects A-share listed companies in Shanghai and Shenzhen from 2013 to 2019 as research samples. The employee stock ownership plan and employee composition data are from the Wind database, and the other data are from the CSMAR database. According to the research practice, this paper deals with the samples as follows : (1) Excluding financial listed companies, ST and PT enterprises and abnormal numerical samples of asset-liability ratio ; (2) Excluding samples with missing data ; (3) Tailing continuous variables at 1 % and 99 % levels.

3.2. variable definition

Accrued earnings management : expressed by symbol DA, drawing on relevant research on earnings management, using the Jones model revised by year and industry to measure and calculate accrued earnings management. The specific calculation process is as follows :

$$TA_{i,t}/A_{i,t-1}=\beta_1/A_{i,t-1}+\beta_2(\triangle REV_{i,t}-\triangle REC_{i,t})/A_{i,t-1}+\beta_3 PPE_{i,t}/A_{i,t-1}+\varepsilon_{i,t} \quad (1)$$

In the formula, Table i represents the company, t represents the year, TA is the difference between the company 's operating profit and the net cash flow generated by the operating activities, Ai, t-1 is the total assets of enterprise i in t-1 years, PPE is the net fixed assets of the enterprise, △ REC is the change of accounts receivable of the enterprise, △ REV is the change of operating income of the enterprise, and ε is the residual of the regression model. According to the modified Jones model, the regression is carried out by year and industry. The predicted residual, namely the discretionary accruals, is used as the proxy variable of accrual earnings management, which is recorded as DA. The absolute value of DA is also used as the proxy variable of accrual earnings management, which is recorded as DACC.

Employee stock ownership (ESOP) : Based on the research results of Li Ming et al. (2017), the proportion of employee stock ownership in the employee stock ownership plan published for the first time after the listing of the company is measured.[10]

The specific definitions of the variables involved in this study are shown in Table 1.

Table 1. Variable description and definition

Type	Variable name	Description
Dependent Variable	DA	Earnings management behavior (discretionary accruals)
	DACC	The degree of earnings management (| DA |)
Independent Variable	ESOP	Employee stock ownership (the proportion of employee stock ownership in the employee stock ownership plan first announced after the listing of the company)
Control Variable	LEV	Asset-liability ratio (total liabilities / total assets)
	SIZE	Firm size (Ln total assets)
	ROA	Return on total assets (net profit / average total assets)
	GROW	Main business income growth rate (current year operating income-last year operating income) / last year operating income
	Age	listed years
	SOE	The nature of property rights (the actual controller is state-owned to 1, otherwise 0)
	Manager	Executive shareholding ratio (number of executives holding shares / number of shares)
	Board	Board size (logarithm of the number of board members)
	Top10	The shareholding ratio of the top 10 shareholders (the number of shares held by the top five shareholders / total equity)
	Ind	Industry
	Year	Year

3.3. model construction

In order to verify hypothesis 1, the following model is constructed with earnings management as the dependent variable and employee stock ownership as the independent variable :

$$DA=\beta_0+\beta_1 ESOP+\beta_2 LEV+\beta_3 Size+\beta_4 ROA+\beta_5 GROW+\beta_6 Age+\beta_7 Cashflow+\beta_8 Manager+\beta_9 Board+\beta_{10} Top5+\sum Year+\sum Ind+\varepsilon \quad (2)$$

The descriptive statistical results of the main variables are shown in Table 2. According to Table 2, the mean value of DA (discretionary accruals) is 0.015, indicating that earnings management has become a common phenomenon in the sample. The proportion of employee stock ownership is 0-4.936 %, with an average of 1.143 %. This is because although there are not many companies implementing employee stock ownership plans, the proportion of employee stock ownership continues to rise. It can be seen from the above analysis that the standard deviation of each variable is generally large, which is conducive to analysis.

4. authentic proof analysis

4.1. Descriptive statistics

Table 2. Descriptive statistics

variable	sample	Mean	Standard deviation	Median	Maximum	Minimum
DA	3003	0.015	0.085	0.015	0.399	-0.337
ESOP	3003	1.143	0.975	0.876	4.936	0
LEV	3003	0.413	0.194	0.406	0.909	0.052
ROA	3003	0.042	0.066	0.044	0.222	-0.373
Top10	3003	57.807	13.246	58.22	92.74	22.99
SOE	3003	0.122	0.328	0	1	0
Board	3003	2.095	0.182	2.197	2.565	1.609
Age	3003	11.256	6.001	9	27	2
GROW	3003	0.376	0.835	0.166	11.455	-0.753
SIZE	3003	22.291	1.131	22.17	26.412	19.673
Manager	3003	0.459	0.564	0.235	3.092	0

4.2. analysis of relationship

In order to test the hypothesis and verify the rationality of the variables, this paper analyzes the correlation of all variables. The results shown in Table 3 show that the correlation coefficient between accrued earnings management DA and employee stock ownership plan (ESOP) is 0.024, indicating that there is a positive correlation between accrued earnings management and employee stock ownership plan, that is, the management is more motivated to ' please ' employees. Through positive earnings management, the stock price is increased and the capital gains when the employee stock is unlocked are increased. Therefore, the management 's motivation to ' please ' employees is also consistent, which is consistent with the positive correlation between employee stock ownership and earnings management expected in this paper. In addition, the correlation coefficients between the variables are far less than 0.50, indicating that there is no serious collinearity.

Table 3. Analysis of relationship

Var	DA	ESOP	LEV	Top10	SOE	Board	Age	GROW	SIZE	Manager
DA	1									
ESOP	0.024	1								
LEV	0.015	0.134	1							
ROA	0.403	-0.036	-0.268							
Top10	0.133	-0.041	-0.014	1						
SOE	-0.026	0.024	0.167	0.014	1					
Board	0.063	0.061	0.090	-0.031	0.139	1				
Age	0.027	0.037	0.304	-0.176	0.293	0.109	1			
GROW	0.104	0.022	0.079	0.035	-0.019	-0.056	0.061	1		
SIZE	-0.088	0.102	0.560	0.089	0.271	0.208	0.419	0.019	1	
Manager	0.012	0.317	0.011	-0.052	-0.105	0.017	-0.022	0.052	-0.142	1

4.3. analysis of relationship

In order to further verify the hypothesis, this paper uses a linear regression model to carry out the regression analysis as shown in Table 4.In Column 1 regression analysis, the regression coefficient of accrued earnings management DA and employee stock ownership plan ESOP is 0.0042, and through the significance test at 5 % level, it shows that employee stock ownership is significantly positively correlated with accrued earnings management, that is, employee stock ownership plan can increase the motivation of management earnings management. This verifies the hypothesis a1. The industry fixed effect is controlled in the regression of column (2) - (5). The regression results of column (2) and medium-full sample show that the regression coefficient of accrual earnings management DA and ESOP is 0.0029, and the significance test at 10 % level is passed. The regression coefficient of column (3) accrual earnings management absolute value DACC and ESOP is 0.0031, and the significance test at 5 % level shows that ESOP can increase the degree of earnings management. When distinguishing the direction of earnings management, positive earnings management is positive.And it is significant at the 1 % level, while in the negative earnings management, the coefficient of employee stock ownership is negative, but not significant, which indicates that the employee stock ownership plan can increase the positive earnings management of the management, and the management sacrifices the interests of shareholders. In order to ' please ' employees and reduce management costs, positive earnings management can increase stock prices and allow employees to enjoy more benefits when stocks are unlocked. To further verify the hypothesis 1a. Under the full sample, when controlling the fixed effect of the industry, the leverage ratio, return on total assets and operating income growth rate of the enterprise have a positive impact on the earnings management of the enterprise, and the proportion of state-owned shares and the proportion of executive shareholding have no obvious impact.

Table 4. Model regression results

	（1）	（2）	（3）	（4）	（5）
dependent variable	DA	DA	DACC	DACC	DA
independent variable	whole sample	whole sample	whole sample	DACC>0	DA<0
ESOP	0.0042**	0.0029*	0.0031**	0.0055***	-0.0006
	(2.99)	(2.08)	(2.66)	(3.82)	(-0.45)
LEV	0.0659***	0.0347***	0.0122	0.0601***	0.008
	(7.59)	(3.81)	(1.63)	(6.21)	(0.89)
ROA	0.686***	0.6448***	-0.2262***	0.3557***	0.4718***
	(32.09)	(30.52)	(-13.04)	(10.79)	(27.56)

Top10	0.0002	-0.0001	0.0006***	0.0004**	-0.0005***
	1.58	(-0.51)	(6.68)	(3.29)	(-4.91)
SOE	-0.0099*	-0.008	-0.0091*	-0.0048	-0.0002
	(-2.31)	(-1.85)	(-2.56)	(-1.04)	(-0.05)
Board	0.0121	0.0061	-0.0055	-0.0131	0.0037
	(1.64)	-0.85	(-0.93)	(-1.67)	(0.53)
Age	0.0006*	0.0002	0.0005*	0.0007**	-0.0002
	(2.34)	(0.64)	(2.36)	(2.72)	(-0.81)
GROW	0.0080***	0.0081***	0.0046***	0.0070***	0.0018
	(5.04)	(5.01)	(3.46)	(4.56)	(0.99)
SIZE	-0.0018	0.0012	-0.0036**	-0.0043*	0.0034*
	(-1.15)	(0.72)	(-2.67)	(-2.42)	(2.1)
Manager	0.0006	0.0007	-0.001	0.0037	0.0021
	(0.26)	(0.27)	(-0.49)	(1.43)	(0.86)
Constant term	-0.0495	-0.0733*	0.1233***	0.1037**	0.1288***
	(-1.48)	(-2.04)	(4.18)	(2.63)	(3.77)
Industry&Year	NO	YES	YES	YES	YES
N	3003	3003	3003	1805	1198
Adj.R2	0.2868	0.3325	0.1234	0.1791	0.4753
F	121.72	49.23	14.63	13.69	35.98

* p<0.05, **p<0.01, *** p<0.001

5. Conclusions and Policy Implications

This paper starts with the relationship between employee stock ownership and earnings management. Based on the data of A-share non-financial listed companies in 2013-2019, it is found that employee stock ownership is significantly positively correlated with accrued earnings management. The discovery has strong policy implications. The purpose of the employee stock ownership plan is to enable employees to hold company shares for a long time, so as to realize the integration of labor and capital interests. In reality, employees may prefer the short-term benefit of ' listed cash '. The management, which should represent the interests of all shareholders, tries to push up the stock price and damage the interests of external shareholders by means of earnings management for the purpose of ' pleasing ' employees. This shows that while implementing employee stock ownership, we must improve the company 's system construction and strengthen information transparency and investor protection. On the one hand, we should strengthen the supervision of management, especially at the end of employee stock ownership, to prevent management from deliberately pushing up stock prices, harming the interests of investors and disrupting market order ; on the other hand, employee stock ownership plans should be entrusted to trade unions or specialized asset management companies for long-term holding, reducing ' cashing out ' incentives, reassuring external investors and internal employees, so that the benefits of company development can better benefit employees.

References

1. Huang Yunxu. Research on the impact of employee stock ownership plan on corporate performance [J].Accounting Newsletter, 2018, No.784 (20) : 32-35.DOI : 10.16144 / j.cnki.issn1002-8072.2018.20.008.
2. Chen Dapeng, Shi Xinzheng, Lu Yao, etc. Employee Stock Ownership Plan and Financial Information Quality [J].Nankai Management Review, 2019, 22 (01) : 166-180.
3. Yang Hualing, Song Chang. Employee equity incentive scope and company performance [J]. Contemporary Finance, 2016, No.385 (12) : 109-118.DOI : 10.13676 / j.cnki.cn36-1030 / f.2016.12.011.
4. Zhang Jiangkai, Song Chang, Wang Yulong. Executives ' participation in employee stock ownership plans, external director governance and earnings management [J]. Accounting Monthly, 2020, No.869 (01) : 19-26.DOI : 10.19641 / j.cnki.42-1290 / f.2020.01.003.
5. Meng Qingbin, Li Xinyu, Zhang Peng. Can employee stock ownership plan promote enterprise innovation ? - Empirical evidence from the perspective of employees [J]. Managing the world, 2019,35 (11) : 209-228.DOI : 10.19744 / j.cnki.11-1235 / f.2019.0158.
6. John E. Gamble. ESOPS: Financial performance and federal tax incentives[J]. Journal of Labor Research, 1998, 19(3) : 529-541.

7. Jones D C , Kato T , Pliskin J . Profit Sharing and Gainsharing: A Review of Theory, Incidence, and Effects[J]. Macroeconomics, 1999.
8. Jiang Weihua. Employee stock ownership, management power and earnings management [J].Accounting Newsletter, 2019, No.824 (24) : 53-57.DOI : 10.16144 / j.cnki.issn1002-8072.2019.24.010.
9. Xiao Shufang, Zhang Chenyu, Zhang Chao, Xuanran. Earnings management before the announcement of equity incentive plan-Empirical evidence from Chinese listed companies [J].Nankai Management Review, 2009, (04) : 113-119 + 127.
10. Li Ming, Huang Xia. Empirical research on the incentive effect of employee stock ownership-Empirical evidence from China 's A-share listed companies [J].Accounting Newsletter, 2017, No.734 (06) : 101-104.DOI : 10.16144 / j.cnki.issn1002-8072.2017.06.025.