

Study on the Influence of Real Earnings Management on Audit Cost

-- Empirical Study on China's A-share Listed Companies

Hanying Yuan, Jicheng Liu

North China Electric Power University, Beijing, China

Abstract

In recent years, due to the promulgation of Sarbanes Act (SOX), listed companies choose real earnings management behavior in order to realize their value maximization. This paper takes A-share listed companies in Shanghai and Shenzhen stock markets from 2018 to 2019 as the objects, further explores the relationship between their real earnings management and audit fees, and empirically analyzes the relationship between earnings management and audit fees. It is found that the real earnings management level of A-share listed companies is positively correlated with audit fees.

Keywords

Earnings Management; Audit Costs; A Shares; The Listed Company.

1. Introduction

Earnings management is the behavior that enterprises adjust and intervene the financial statements information purposely for seeking private interests on the basis of following accounting standards, so as to maximize the market value of the company. Listed companies usually choose to implement earnings management in order to seek private interests, but after the promulgation of Sarbanes Act (SOX), listed companies choose real earnings management in order to maximize market value.

Accrual earnings management mainly adjusts the profits of enterprises by selecting accounting estimates and accounting policies. Real earnings management starts from the normal business activities of enterprises and changes the real transaction decisions of enterprises, so as to manipulate earnings. Compared with accrual earnings management, the manipulation means of real earnings management are more concealed. In order to reduce the risk brought by the existence of real earnings management for the registered accounting, the certified public accountants will expand the audit sample, so the audit cost will rise, and the audit fee will also increase.

Many domestic scholars have studied the impact of real earnings management on audit fees. According to the research of Gang Li, Lijun Chen and Shiming Yang [1](2015), the more manipulative behaviors of enterprises on real earnings management, the higher audit fees they pay to accounting firms. In addition, they considered the influence of customer trust and accounting firms' brand influence, and they found that when the listed companies were audited by "the top ten" accounting firms in China, the significance of audit fees for real earnings management was higher than that of non-"the top ten" accounting firms. According to the research of Yinghui Song and Junsheng Chen [2](2017), the real earnings management of audit clients of the international "The Big Four" accounting firms has a greater impact on audit costs and is more sensitive to the real earnings management. According to the study of Liang Zhao [3](2018), real earnings management has a positive impact on auditors' short-term and long-term pricing behavior.

Compared with foreign studies on real earnings management and audit costs, domestic studies on this aspect started relatively late. From the subject of relevant literature, existing literature on the relationship between real earnings management and audit fees in specific industries still needs to be continuously supplemented and enriched, so it is necessary to study the impact of real earnings management on audit fees. Taking A-share listed companies from 2018 to 2019 as the object, this paper further explores the relationship between real earnings management and audit fees, aiming to supplement and enrich the theory of the relationship between real earnings management and audit fees.

2. Theoretical Analysis and Hypothesis Research

2.1. Theoretical Analysis

With the gradual maturity of China's capital market and the increasing perfection of accounting standards, the awareness of other inherent risks in accrual earnings management, the management of listed companies are more inclined to manipulate the real earnings management activities with stronger concealment to manipulate earnings. According to the insurance theory, the more earnings management activities an enterprise carries out, the higher audit risks the auditor will face. Therefore, the larger the audit samples the auditor needs to carry out and the more the audit procedures are, so the firm will charge higher audit fees. The theory of information asymmetry refers to the fact that the agent and the principal have different information, so the party with poor information is always in the position of ignoring the information. For listed companies, the company's management and internal personnel are in a favorable position, while investors and other stakeholders of the company are difficult to understand the true financial situation of the company due to information asymmetry.

2.2. Research Hypothesis

Earnings management refers to the behavior that an enterprise manipulates its earnings to make the management benefit from it. However, this kind of behavior will increase the uncertainty of corporate financial statements and require auditors to invest a lot of time and energy to collect effective information and data for auditing. Therefore, higher requirements are produced for the professional ability of auditors and higher auditing fees will be paid by enterprises. The following assumption is made:

Hypothesis: There is a positive correlation between the audit fees paid by A-share listed companies in Shanghai and Shenzhen and their real earnings management.

3. Study Design

3.1. Data Source and Sample Selection

(1) Data source

The sample data in this paper are all from the Wind database, in which the data needed to calculate the real earnings management comes from the financial statements of the company. The audit fee data comes from the audit report collected in the Wind database. The data of the control variables are derived from the financial statements and notes of the enterprise collected in the Wind database.

(2) Sample selection

The data samples in this paper will be analyzed based on the performance of A-share listed companies in Shanghai and Shenzhen in 2018 and 2019. In order to ensure the validity of the data, the following procedures are used to screen the data : (1) The financial data of the company in the previous two years are needed in the calculation process. Therefore, when screening the data, firstly, the data of the newly listed companies in 2017 are excluded by

comparing the codes of the listed companies in 2016, and the listed companies in 2018 are excluded in the same way. Second, the data of the delisted companies in 2017 and 2018 are excluded. When sifting through the 2019 data, we need to exclude data on new listings in 2018 and 2019 and delisted listings in 2018 and 2019. (2) The accounting standards of the financial industry are different from those of other industries, so the financial industry is excluded. (3) In order to avoid the impact on the overall analysis The financial data of ST company fluctuated greatly, so ST company was excluded. (4) Eliminate companies with missing data.

Through the screening of the above steps, 5,861 sample data were finally obtained, including the data of 2,695 listed companies in 2018 and 3,165 listed companies in 2019. In this paper, Excel, Stata and SPSS19.0 are used to process the data.

3.2. Model Construction

Lina Wu [5] (2003), a famous audit expert in China, proposed that Logistic model was adopted in the study of audit costs at home and abroad. the most common ones are:

$$LnFEE = \beta_0 + \beta_i X_{i,t} + \sum \beta_k Controls + \varepsilon_i \tag{1}$$

The model first takes the logarithm of the explained variable. The influencing factors to be studied, namely explanatory variables, are added into the model. The model also controls for other factors that affect audit costs, namely control variables. This paper uses this model to test. Based on the theoretical analysis and Logistic model, the research model is constructed, and the relevant data is incorporated into the model for regression to test whether the hypothesis is valid. Thus, the empirical method is used to solve the problem, that is, the audit services obtained in battery production listed companies are positively correlated with their real earnings management:

$$LnFEE = \beta_0 + \beta_1 REM + \beta_2 REC + \beta_3 SIZE + \beta_4 LEV + \beta_5 ROA + \beta_6 LOSS + \beta_7 OPI + \varepsilon \tag{2}$$

3.3. Variable Selection

(1) Explained variable: Audit FEE (LN Fee). The relationship between real earnings management level and audit FEE is studied. Audit FEE is the explained variable. Ln FEE is used to represent the annual audit cost of the auditee, and the natural logarithm of the audit cost is taken. This variable is related to many factors.

(2) Explanatory variables: Real earnings management level (REM), this paper uses the model method of Roychowdhury [4] (2006) to estimate the normal operating cash flow (CFO), normal production cost (COGS) and normal expense of the enterprise, and then record the difference between the actual value and the estimated value as outliers. Based on its outliers to measure the true earnings management degree of the enterprise, the estimation model is shown as follows:

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{Sale_t}{A_{t-1}} + \alpha_3 \frac{\Delta Sale_t}{A_{t-1}} + \varepsilon_{1t} \tag{3}$$

$$\frac{COGS_t}{A_{t-1}} = \alpha_4 + \alpha_5 \frac{1}{A_{t-1}} + \alpha_6 \frac{Sale_t}{A_{t-1}} + \alpha_7 \frac{\Delta Sale_t}{A_{t-1}} + \alpha_8 \frac{\Delta Sale_{t-1}}{A_{t-1}} + \varepsilon_{2t} \tag{4}$$

$$\frac{DISE_t}{A_{t-1}} = \alpha_9 + \alpha_{10} \frac{1}{A_{t-1}} + \alpha_{11} \frac{Sale_{t-1}}{A_{t-1}} + \varepsilon_{3t} \tag{5}$$

In the above formula, A_{t-1} represents the total assets of the enterprise in the previous period, CFO_t represents normal cash flow in the current period, the sales revenue of the current period, that is, the income from the main business. $\Delta Sale_t$ represents the increment of the current sales revenue relative to the previous sales revenue. COG_t^s is the current production cost, that is, the main business cost. The current normal expenses are expressed as the sum of the current selling expenses and administrative expenses for the purpose of discussing the operating ability of the enterprise. According to the above model equations (3), (4) and (5), the estimated residual values ε_{1t} , ε_{2t} and ε_{3t} are respectively abnormal operating cash flow ($abCFQ_t$), abnormal production cost ($abCOG_t^s$) and abnormal expense ($abDIS_t$). Then, by referring to the method of Fusheng Wang (2014), the true earnings management degree (REM_t) is calculated, as shown in Equation (6):

$$REM_t = abCOG_t^s - abCFQ_t - abDIS_t \tag{6}$$

(3) Control variables: The proportion of inventory and accounts receivable in total assets (REC). Liquan Xing and Hanwen Chen[12] (2013) believe that inventory needs a lot of time to take inventory, and accounts receivable, third parties, bad debts and other problems need a lot of confirmation, so there are complexity and risks. Company SIZE (SIZE), natural log of ending total assets, It is generally believed that the scale of the audited company is an important factor affecting audit fees. Debt to asset ratio (LEV), the higher the enterprise's debt to asset ratio, the greater its financial risk. Return on Total Assets (ROA), is a measure of corporate profitability. Loss of the company (LOSS) generally reduces executive compensation, which makes executives conduct earnings management in order to maintain their own interests, thus resulting in the increase of audit fees. Therefore, LOSS is used as the control variable. Type of audit opinion (OPI), the audit opinion given by the accounting firm to the auditee.

Variable definitions in this paper are shown in Table 1:

Table 1. Main variable name and formula

	Variable	Sign	Formula
Explained Variable	The Audit FEE	Ln FEE	The natural log of the audit variable
Explanatory variables	Real Earnings Management Level	REM	Absolute value of real earnings management
Control Variables	Inventories and accounts receivable as a percentage of total assets	REC	(Inventories + Accounts Receivable)/Total Assets
	The company size	SIZE	The natural log of total assets at the end of the year
	Asset-liability Ratio	LEV	Total liabilities/total assets
	Return on total assets	ROA	Net profit/total assets
	The company losses	LOSS	The net profit of the company in the previous year is negative take 1, otherwise it is 0.
	Type of audit opinion	OPI	For this year's audit opinion, if the company's financial report is issued with non-standard audit opinion, it is 1, otherwise it is 0.

4. Empirical Analysis

4.1. Descriptive Statistical Analysis of Variables

Table 2. Descriptive statistics of major variables

Variable	Minimum	Maximum	Mean	STD
Ln FEE	12.0436	17.7858	13.8587	0.6766
REM	0.0000	66.0000	0.4000	1.1620
REC	0.0000	0.9144	0.2683	0.1653
SIZE	18.2874	28.6365	22.4419	1.3582
LEV	0.0000	0.9144	0.2683	0.1653
ROA	-1.6479	0.5262	0.2887	0.0974
LOSS	0.0000	1.0000	0.1100	0.3090
OPI	0.0000	1.0000	0.0400	0.1840
abCFO	-3.7501	0.8859	0.0653	0.0643
abCOGS	-0.4707	66.1969	0.5213	1.1579
abDISE	0.6219	0.4864	0.0948	0.0235

First of all, descriptive statistical analysis is conducted on the variables used in this paper, as shown in Table 2. For the case of whether there is real earnings management in the sample, the regression coefficients ε_{1t} , ε_{2t} and ε_{3t} of models (2), (3) and (4) of real earnings management activities should be calculated by using the method of multiple regression through the calculation of *abCFO*, *abCOGS* and *abDISE*. The regression coefficients and ε_{1t} , ε_{2t} and ε_{3t} are substituted into the models (2), (3) and (4) of real earnings management activities. The software is used to calculate the normal value of each company sample, and then the actual value of the company sample is subtracted from the normal value, and the difference obtained is the desired data result.

REM = *abCOGS* - *abCFO* - *abDISE* for variables that reflect the degree of real activity earnings management, the mean value of abnormal operating cash flow (*abCFO*) is 0.0653. The mean value of abnormal production cost (*abCOGS*) is 0.5213. The mean value of abnormal cost (*abDISE*) was 0.0948 and the mean value of REM was 0.4000. Through the above descriptive statistical results, the following conclusions can be drawn: first, the real earnings management behavior of sales manipulation and expense manipulation is indeed prevalent in listed companies. In the second, Generally speaking, the real earnings management degree of A-share listed companies in Shanghai and Shenzhen is relatively high.

4.2. Pearson Correlation Analysis of Variables

The results of Pearson analysis are shown in Table 3. The following conclusions can be drawn: First, from the perspective of the correlation degree of individual independent variables, the highest is the coefficient between the type of audit opinion (OPI) and the proportion of inventory and accounts receivable to total assets (REC), which is 0.023, and the correlation is low. The lowest correlation coefficient is only 0.009, indicating a very low correlation. Secondly, it can be seen from Table 3 that most of the variables are significantly correlated with the explained variables, which indicates that the control variables selected in this paper are reasonable. However, the research subject of this paper, namely real earnings management, is related to audit costs in Pearson correlation analysis, and the expected symbol is positive and significant. The next step in this paper is to conduct a deeper analysis of the model, namely regression test.

Table 3. Coefficient of Person

	In FEE	REM	REC	SIZE	LEV	ROA	LOSS	OPI
In FEE	1							
REM	0.089**	1						
REC	-0.022	0.060**	1					
SIZE	0.725**	0.071**	-0.054**	1				
LEV	0.377**	0.095**	0.262**	0.508**	1			
ROA	-0.058**	0.054**	-0.077**	0.062**	-0.248**	1		
LOSS	0.009	-0.051**	0.034**	-0.110**	0.125**	-0.633**	1	
OPI	0.034**	-0.010	0.023	-0.047**	0.124**	-0.285**	0.243**	1

4.3. Regression Results and Analysis

Table 4. Model regression results

Variable	Coefficient	t-Statistic	Prob.
C	5.421**	46.816	0.000
REM	0.046**	5.123	0.000
LEV	-0.048**	-4.129	0.000
REC	0.020**	2.149	0.032
ROA	-0.081**	-6.728	0.000
LOSS	0.039**	3.382	0.001
SIZE	0.758**	4.653	0.000
OPI	0.043**	69.588	0.000
R ²	Adjusted R ²	DW	Prob(F-Statistic)
0.542	0.541	1.867	0.000

**There was significant correlation at the level of 0.05.

Table 4 shows the regression results of the impact of real earnings management on audit costs when other variables are controlled. It can be seen that the regression R² is 0.542, the adjusted R² is 0.541, and the Prob(F-statistic) test is 0, indicating that the model fitting in this paper is good and overall significant. The DW value is 1.867, close to 2, and there is no autocorrelation problem.

In the regression results of this paper, the coefficient of real earnings management is 0.046, which is positive, and the Prob value is 0.000, which is significant at the level of 5%. This is consistent with the hypothesis of this paper, that is, real earnings management significantly affects the level of audit fees of A-share listed companies. In the case of controlling other variables, the more the listed company manipulates earnings through real earnings management activities, the more likely auditors are to charge higher audit fees, which is consistent with our previous literature and theoretical analysis. Therefore, the hypothesis proposed in this paper has been verified.

In terms of control variables, the regression test of this paper draws the following conclusions: the size of the audited company has an impact on audit costs. The coefficient of the size of the audited unit is 0.758, and it is significant at the level of 5%, which verifies that the size of the audited unit will greatly affect the audit cost, and it is reasonable to use it as a control variable. As for the variable return on total assets, its coefficient is -0.081 and its influence is negative, which is not consistent with the expectation.

5. Conclusions and Recommendations

This paper adopts the samples of companies from 2018 to 2019, combined with theoretical deduction and empirical test of the impact of real earnings management on audit fees, and draws the following conclusions:

First, under the control of other relevant influencing variables, the real earnings management of China's listed companies is significantly positively correlated with audit fees.

Second, company size is significantly positively correlated with audit costs, which is also an important factor affecting audit costs.

Based on the above conclusions, this paper proposes the following suggestions: First of all, some suggestions for investors and other financial report users. Investors and other financial report users should play the role of external supervision, identify the real earnings management behavior of listed companies to manipulate profits, and put an end to their whitewashing of financial reports, which is beneficial to the healthy development of China's capital market. Second, it is necessary to have a targeted system and rules for the fees of accounting firms. This study shows that the real earnings management will increase the audit difficulty, and also increase the audit risk.

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