

Study on degree change and approaches of GEM earnings management

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Abstract: the study on GEM Earnings Management behaviors can not only help investors make right decisions, but also find a way to enhance configuration efficiency of capital market. The paper studies the Earnings Management behaviors of Chinese GEM-listed companies before and after IPO with Modified Jones model and the result shows there are Earnings Management behaviors at different degrees among Chinese GEM-listed companies before and after IPO and the degree before IPO is higher than that after IPO. The further study indicates there are selection preferences of GEM-listed companies in Earnings Management approaches-net amount of non-operating incomes, investment incomes and subsidy incomes in turn.

Keywords: Earnings Management, Degree Change, Modified Jones Model, Approaches of Earnings Management

1. Introduction

To support the development of innovative and growing enterprises, China launched the GEM board in October, 2009. Many researches suggest that China's listed companies will conduct earnings management to satisfy requirements of listing or re-financing. Therefore, it is reasonable to suspect that GEM board may have phenomenon of earnings management. Excessive earnings management will impair the allocative efficiency in the capital market, thus further causing disturbance in the market economy. Consequently, it is inevitable to carry out research on the earnings behaviors in the GEM board.

2. Literature Review

Academic study regarding earnings management dated back to the 1980s, when overseas researches on earnings management concentrate on "whether or not"

and "when" exist earnings management behaviors, with differences mainly expressed by research methods.

As to research methods of earnings management, current methods mainly include total accruals method, specific accruals method and distributed detection method. Specific accruals method is mainly used to study a certain industry; for example, McNicholas (1988) applied it in researching on bad debt provision and Beaver (1998) adopted it in studying the insurance industry. Distributed detection method tests the presence of earnings management mainly through the distribution function of earnings in the test reports; this method is more feasible and efficient when there is common threshold under market supervision. Take Chen Xiaoyue and Xiao Xing (2000) as example, they applied this method to study the relationship between earnings management behaviors in listed companies and policies of rationing shares. Certainly, the most mature and widely used is the total accruals method, with the most representative models as the Healy model(Healy, 1985), the random walk model (DeAngelo, 1986), the Jones model (Jones,1991), and modified Jones model(Dechow et al., 1995), among which the modified Jones model is the most mature and most widely used.

In terms of methods of earnings management, there are three main aspects: (1) manage earnings through accounting means, primarily including changing the depreciation of fixed assets, changing inventory valuation and preparing plenty of depreciation provisions etc. Xue Shuang et al (2006) found that companies that reversed losses started preparing for depreciation provisions more than one year before they turned losses into profits while largely wrote off depreciation provisions in the year of reversal. (2) manage earnings through non-recurring gains and losses, mainly including financial subsidies, tax returns and relieves etc.. Chen Xiao et al ((2001) found that companies take advantage of the financial support from the local government to enhance firm performance to meet the requirements of rationing shares for listed companies. (3) Manage earnings through related party transactions, as Du Bin(2003) found that for three consecutive years related party transactions had become the primary means for deficit companies to reverse losses.

At present, researches on earnings management by domestic scholars are mainly focused on the main board market, rarely for the GEM board. Also, researches on the order of preferences for earnings management methods are in relatively small number. From the angle of the GEM board, this paper adopted the modified Jones model to study the extent and methods of earnings

management before and after companies get listed on the GEM board. This research can not only help users of financial reports to have a comprehensive and correct understanding of the quality and value of earnings management in the GEM board market in order to make more informed choices, but also provide a basis and suggestions to further standardize the GEM board.

3. Research Hypotheses

A large number of domestic researches indicate that China's listed companies conduct earnings management to meet certain earnings indexes as required by China Securities Regulatory Commission (CSRC) before IPO, the year of loss or refinancing. Zhang Zongyi and Huang Xinjian (2003) found that there indeed exists significant earnings management before and after IPO, culminating at the year of IPO. GEM board is an important financing channel for small and medium-sized high-tech enterprises; CSRC's regulations mainly take related earnings indexes as an inspection standard. Therefore, based on the motivation to meet the listing requirements, enterprises will adjust and increase earnings management behaviors before the listing. Hence proposed is:

Hypothesis 1: GEM board companies do have earnings management behaviors aiming at adjusting and increasing profits.

Lu Jianqiao (1999) discovered that deficit listed companies take earnings management measures before and after the year of loss to avoid three-year's consecutive loss which will lead to delisting by CSRC. One of the delisting conditions on the GEM board is loss in three consecutive years or retrospective adjustments that lead to three years' consecutive losses will be suspended in listing and four consecutive years of losses will call a termination of listing. Therefore, it is reasonable to suspect that companies on the GEM board do have earnings management behaviors to adjust and increase profits confronted with the delisting request from CSRC. Hence proposed is:

Hypothesis 2: after listing, companies on the GEM board will have certain earnings management behaviors to adjust and increase profits.

Based on different motivations for earnings management, listed companies vary in the extent of earnings management. With regard to the GEM board market, the delisting supervision system is not yet sound and motivation for earnings management after listing in listed companies will decrease; as a result, we think after listing, companies on the GEM board will have lower extent of earnings management. Hence proposed is:

Hypothesis 3: after listing, companies on the GEM board have lower extent

of earnings management.

China's listed companies have a variety of options on earnings management methods and different earnings management methods generate different profits and costs. In addition, since companies have different motivations for earnings management and vary in limitations of environments and conditions, listed companies will have certain preferences in choosing earnings management methods. Sun Yanxia (2007) found through researching on the preference of earnings management in China's deficit listed companies that earnings management is more useful than main business in reversing losses to profits, and net value of non-operating revenue and expenditure is the most favored earnings management method of deficit listed companies, followed by the investment income method, while the subsidy income methods makes the least contribution. Hence proposed is:

Hypothesis 4: companies on the GEM board have preferences in choosing earnings management methods.

4. Research Design

4.1. Sample Selection

Since China's GEM board market has a short history of development, there are not many enterprises on the board; therefore, we picked 188 companies on the GEM board with their data from 2009 to 2011 as samples.

4.2. Research Design

4.2.1 Model One

This model used modified Jones model to test the difference of extent in earnings management of listed companies before and after listing and adopted $DA_{i,t} / A_{i,t-1}$, namely the maneuverable accruals adjusted by the total assets in the last period end, to measure the extent of earnings management. The model is as follows:

- 1) Total accruals equal to net profit minus the net cash flow generated from operating activities, and the estimated total accruals is $TA_{i,t}$:

$$TA_{i,t} = NI_{i,t} - CFO_{i,t} \quad (1)$$

- 2) Using SPSS software to make regression analysis will need parameters b_1, b_2, b_3 :

$$\frac{TA_{i,t}}{A_{i,t-1}} = \frac{b_1}{A_{i,t-1}} + b_2 \cdot \frac{\Delta REV_{i,t}}{A_{i,t-1}} + b_3 \cdot \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \quad (2)$$

- 3) Apply b_1, b_2, b_3 into the following equation, and calculate $NDA_{i,t}$, the non-maneuverable accruals adjusted by the total assets in the last

period end of company i :

$$NDA_{i,t} = \frac{b_1}{A_{i,t-1}} + b_2 \cdot \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} + b_3 \cdot \frac{PPE_{i,t}}{A_{i,t-1}} \quad (3)$$

- 4) Total accruals include maneuverable accruals and non-maneuverable accruals, then obtained is the maneuverable accruals adjusted by the total assets in the last period end of company i $DA_{i,t}$:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - NDA_{i,t} \quad (4)$$

In equation (4), $A_{i,t-1}$ means the total assets of the last period end of company i ; $PPE_{i,t}$ means the value of fixed assets in current period of company i ;

$\Delta REV_{i,t}$ means the balance between main business revenues of current period and last period in company i ;

$\Delta REC_{i,t}$ means the balance between receivable accounts of current period and last period in company i ;

$NDA_{i,t}$ means the normal accruals of company i after adjustment of total assets in last period end.

4.2.2 Model Two

Analysis of the Preferences of Earnings Management Methods with GEM Board Companies

As listed companies have different market environments and actual conditions of themselves, they tend to choose different earnings management methods, using changes in accounting policies, related party transactions and non-recurring gains and losses. Changing accounting policies is seldom adopted by listed companies; related party transactions are very complex and it is difficult to strip out specific transaction data. Consequently, this paper selected investment income, net value of non-operating revenue and expenditure, and subsidy income as research subjects. Variables are all divided by total assets, in order to eliminate the influence of scale factor. The model is designed as follows:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \varepsilon_i \quad (5)$$

In equation (5), Y means Net profit / year-end total assets

X_1 means main business profit / year-end total assets

X_2 means subsidy income / year-end total assets

X_3 means net value of non-operating income / year-end total assets

X_4 means investment income / year-end total assets

If net profits mainly come from main business profits, it indicates a normal operation of the company; if net profits are greatly influenced by non-recurring

gains and losses and investment income, it suggests that the company may have earnings management behaviors, and the preference of earnings management in the company can be confirmed by the size of its parameters.

5. Research Process and Analysis

5.1. Test the Extent of Earnings Management before Listing

$DA_{i,t}$, the extent of earnings management in GEM board companies before listing is shown in Table 1. as follows: on average, the extent of earnings management with sample companies is 15.1% of the total assets in last period end; the coefficient is 1.101, greater than 0, which can be concluded that companies generally have the tendency of increasing profits before listing thus have earnings management behaviors. In addition, the statistics is made into the histogram as shown in Figure 1. Sample companies with $DA_{i,t}$ larger than 0 take up 91.18%; the extent of earnings management generally indicates normal distribution, and sample companies have the tendency to increase profits.

Table 1: Descriptive statistics of the extent of earnings management

	Min	Max	Average	SD	Skewness	Kurtosis
Statistics	Statistics	Statistics	SD	Statistics	Statistics	SD
maneuverable accruals	-.155	.675	.151	.0145	.146	1.101
					.239	2.255
						.474

5.2. Test Extent of Earnings Management after Listing

$DA_{i,t}$, the extent of earnings management in GEM board companies after listing is displayed in Table 2 below: the average value of the extent of earnings management is 0.065, namely the average extent of earnings management with sample companies accounts for 6.5% of the total assets in the last period end; the skewness coefficient is 0.812, larger than 0, which means listed companies after listing have the tendency of enhancing profits, thus suggesting the existence of earnings management. After statistical analysis of the extent of earnings management in different companies, the histogram is made as in Figure 2. After listing, 82.47% of sample companies have $DA_{i,t}$ larger than 0; the extent of earnings management is in normal distribution with the center of distribution around 0.03-0.06 (that is, the companies that have the extent of earnings management accounts for 3% -6% of total assets in last period end are in the largest number). As the normal distribution in the figure is apparently located in the right side, sample companies have the tendency to enlarge profits.

Table 2: Descriptive statistics of the extent of earnings management

	Min	Max	Average	SD	Skewness	Kurtosis			
	Statistics	Statistics	Statistics	SD	Statistics	Statistics	SD	Statistics	SD
Maneuverable accruals	-.215	.464	.065	.0120	.118	.812	.245	1.616	.485

5.3. Analysis of Earnings Management Methods

According to Model Two, we use SPSS to make regression analysis of dependent variable net profits and independent variables such as main business profits, subsidy income, net value of non-operating revenue and expenditure, and investment income, and deprived is the estimated value of coefficient in equation (5) and statistical analysis as shown in Table 3. From Table 3 we can see that Sig. of all the coefficients of dependent variables is less than 5%, that is, all coefficients are significant. In addition, each dependent variable has a positive coefficient, respectively as 0.826, 0.862, 1.246, 1.241, which indicates that enhancing main business profits, subsidy income and net value of non-operating revenue and expenditure and investment income all make contributions to the net profits of listed companies. According to the size of coefficient β , the net value of non-operating revenue and expenditure is the best earnings management method for listed companies, followed by investment income and subsidy income the least. Hypothesis 4 is thus verified.

Table 3: Preference results of earnings management methods

Variables of the Model	Non-standardized Coefficient		Standardized Coefficient		Sig.
	B	SD	Trial		
(constants)	.001	.001		.821	.414
Main Business Profits	.826	.020	.925	42.218	.000
Subsidy Income	.862	.119	.159	7.242	.000
Net Value of Non-operating Revenue and Expenditure	1.246	.487	.056	2.561	.012
Investment Income	1.241	.223	.122	5.570	.000

6. Conclusions

(1) GEM board companies all have different extents of earnings management before and after listing. Earnings information of the current GEM board market cannot truly and fairly reflect the financial situations and operating achievements of enterprises, which reduces the decision-making value of financial information for users, harms investors' interests and goes against the optimal allocation of social resources. Therefore, regulatory authorities should step up in supervision measures for GEM board companies before and after

listing.

(2) The extent of earnings management of GEM board companies will decrease after listing. This is mainly because there are no sound supervision policies regarding delisting and companies' motivation for earnings management drop after listing. Related departments of Shenzhen Stock Exchange are actively amending chapters and articles of stock delisting on the GEM board, which is believed to create a healthier environment for China's GEM board market.

(3) Indeed, companies on the GEM board have preferences in selecting earnings management methods, specifically in a descending order of preference as net value of non-operating revenue and expenditure, investment income and subsidy income.

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