A Study of the Effective Variables on Earning Management: Iranian Evidence

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Abstract: The current study aims to examine the effective variables an earning management in Tehran Stock exchange during 2004-2010. In this research the discretionary accruals from modified Jones model to determine earning management in the firms have been used and auditor change and type of auditor (for examining accounting quality), type of ownership, number of main shareholders, percentage of ownership for largest shareholder, percentage of ownership main shareholders (for examining corporate governance), incentives of earning management (number of employee, equity-debt ratio, leverage and tax) and also financial ratios (performance coefficient, changes in net income, gross income to sale ratio and current ratio), used firm size and type of industry variables have been considered as control variable. To analyze data the multiple regression and backward regression as well as interaction regression have been used cross-sectionally and collectively. Results of performed tests document that there would be a negative relationship between performance coefficient with earnings management and a significant positive relationship between gross income to sale, current ratio, changes in net income and firm size with earning management.

Keywords: Backward regression, earning management, interaction regression, modified Jones model

INTRODUCTION

One of the most important characteristics of publicly held is to separate ownership from management. Based of this, there have been possible for managers to have access to same information and also prepare and send the information such as financial information. This characteristic and also accrual accounting due to existence of accruals (difference between cash earnings and accrual earnings) and incentives such as bonus would allow for managers to manipulate the information in favor of themselves and as apposite to others and or speaking more complete they would manage earning. Reported earnings have broad effect an all business activities in economic institution and also decision making by managers. One of the most important problems which would occupy manager's thoughts during financial period is access to financial analysts' forecasts and meeting the market expectations. Because announcing reported earnings less than as expected result in to reduce stock value and compromise manager's position. Of course meeting the market expectations is one of the matters that would affect the behavior of managers and lead to them to manage earnings. Considering the contrast of interests for managers-owners theory the managers of economical institutions could have necessary incentive to maximize their wealth. It is necessary to note that owners of business units could be motives for managers to earnings management toward their interests. In summary the

managers of business units try to manipulate through application of different instruments and accounting different methods to manifest an ideal figure from institution and present a positive figure from performance of business unit.

On the other side decisions of many individuals is based on extra organizational reports. For example the managers should make decisions about selecting (choice of) measurement and financial reporting procedures.

Accountants also should suggest appropriate procedures in the line with provide consulting services to managers. Credit and financial institutions should measure the credit amount for companies which use accounting different procedures. All of these individuals and groups such as managers of companies are intended to inform how the reporting and measurement different methods affect their wealth to make decision about accounting reports. Earning management researches is suitable and beneficial for accounting knowledge from different aspects. Especially, it join to management judgment role in information from such approach and quality of exercising opinion of managers in reporting financial statement items and finally market response to manipulated information by management. Earning management could be a contact arena for two views spectrum about more ideal criteria of performance evaluation (i.e., proponents of two criteria for earnings and operating net cash flows). Thus, from theoretical aspect the earning management shows itself

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attractive and challengeable. Doubtless this was one if the initial incentives for performing present research. On t other hand manipulating accounting information which earnings management is an example for it has economical, social and political broad consequences? Adverse experience regarding accounting information manipulation in developed countries like Enron and WorldCom scandals would result in to be taken into serious consideration the importance of a finding such as earning management.

Research problem: For years ago the financial economists and accountants specify that the firms use their free hand to interpret and apply the standards to manage instrumental earnings. Firms have different backgrounds and incentives to manipulate earnings. For example, to exhibit a good figure of financial statements before initial public offerings; to avoid from presenting information which show violation about loan contracts and giving order practices that is resulted by manipulating results (Healy and Wahlen, 1999). In recent decades the evidence showed ascending trend of earning management.

Especially in recent years the stock and options based bonus plans have been emerged which have high predictive power about aggressive accounting (Cornett *et al*., 2008). On the other hand in following recent scandals in corporations a negative attitude have existed about earning management and it is taken into account a harmful action for companies.

One of the purposes imposing accounting standards is that users could make relative relevant and correct decisions by reliance to financial statement so accounting professional require to a reporting approach which would regard all users interests ideally. On the other hand as earning management definition shows the managers report the earning so that it contrasts with public interest of all users. Auditors are responsible to endorse about desirability of financial statements in the accounting standards frame, while accounting standards also in some cases put open manager's hand to select accounting practice. In deed the problem stem from that earning management in some cases result in mislead financial statements, while they have not difficulties in terms of compliance with accounting standards and auditors can not criticize financial statements in this regard. Then, with due attention to this fact that earning is one of the most important elements in decisions making; awareness of users from earning reliability could help them to make better decisions.

In recent decades many studies about earning management have been performed. Most of these studies have been dealt with to determine effective incentives, instruments and factors on earning management. Numerous definitions about earning management have been provided from different viewpoints. From Healy and

Wahlen (1999) views the earnings management occur when manager use his/her personal judgment for financial reporting, and this do to mislead some stockholders about economical actual performance and or affect on results of contracts reliance to reported accounting numbers. From Degeorge *et al*. (1999) view the earning management is a kind of earning artificial manipulation by management to attain aspiration level of earning for some specific decisions (such as analysts forecasts and or evaluating prior earning trend to predict future earnings). In deed the main motive for earning management is investor's imagination management about business unit.

To evaluate earning management it is necessary to consider used practices by managers for reported earning management. Generally measurement practices of earning management assumed that reported earning manage through changes in accounting practices (Sweeney, 1994), timing actual investments and financial decisions (Hand, 1989) and a managerial discretion about accruals (Healy and Wahlen, 1999). Changes in accounting practices or financial and investment decisions timing would not be useful so much in reducing probability for determining earning management. Also these practices are observable clearly and probable they are determined easily and will neutralize in investors making decisions. In contrast accruals are not observable easily and necessary information to neutralize their impacts and reported earning would not be available easily (Schipper, 1989). Further, among earning management instruments accounting accruals is easier for manipulating and it's discover is more difficult. However, distinguishing manipulated optional section by managers is difficult for researchers. To solve this problem prior researches have suggested numerous practices and methods to estimate detailed accruals.

LITERATURE REVIEW

Many researchers have been conducted about earning management and these researches have been in financial different areas which is suggested some of cases in the following.

Moses (1987) and Michaelson *et al*. (1995) have provided evidence which indicated large companies have more incentive to smoothing earning than smaller one. Also, results from Michaelson *et al*. (1995) indicated that smoother companies have mean risk and lower return than non-smoother companies is larger than non-smoother companies. In contrast, Albrecht and Richardson (1990) have concluded that larger companies relative to smaller companies will attract more analysts so larger companies are more known and thus they need to smooth earnings less than smaller companies. Lee and Choi (2002) also found that small companies' relative larger companies more likely will use earning management to avoid loss

reporting. Ashari *et al.* (1994) did not provide evidence about effectiveness of firm size on income smoothing however he indicated that degree of company profitability and nationality and industry type would be effective factors in income smoothing.

Dechow *et al.* (1996) found that companies that their senior executive is chief of director board more likely to embark in actions and accounting practices which Securities and Exchange Commission has introduced them as violence of accounting generally accepted principles. Also in companies that percentage of its independent members in director board is more, the violence of accounting generally accepted principle is so limited. Steveny and Vanstraelen (2006) investigated the behavioral difference between control manager companies and control owner socially. The results suggested that decision making policies in companies with control manager relative to companies with control owner have been toward income smoothing clearly. Peas *et al.* (2000) concluded that as non-executive members' ratio increase in board of director the probability of existence of increasing-income accruals will reduce. Chtourou *et al.* (2001) found that independence of board of director will limit activity of earning management. Becker *et al.* (1998) and Francis *et al.* (1999) found evidence which indicated amount of discretionary accruals in companies which are audited by 6 Big Audit Firms is less than companies which are audited by auditing smaller institutions. Krishnan (2003) found that auditing play a significant role in limiting changing earning management. Dang (2004) indicated that auditing quality reduce earning management in the company issuing stock and quality of auditing limit the earning management. Chang *et al.* (2003) found that size of auditing firm is an important for determining earning management. Steveny and Vanstraelen (2006) concluded that in strict auditing contexts the earning management will reduce. Kam-Wah *et al.* (2008) concluded that firms which have audited by Big Firms have accruals less than other firms and this is due to being mote known and being reliable its brand. Prawitt *et al.* (2009) have indicated that high quality of internal auditing lead to equilibrate earning management. However, Bauwhede and Willeekens (2004) two Belgian researchers indicated that there is not a significant relationship between auditing size and auditing quality. One of the results of their research was that earning management in companies which are audited by Big Six Audit Firms would not be less than other firms.

Odabashian (2005) concluded that general increase of debts result in reduces opportunities' behavior and earnings management in companies with free cash flows and low growth. Results of Jelinek (2007) research also showed that changes and different level of leverage could have different impacts on earning management.

Ebrahim (2007) examined the relationship between earning management and activity of board of director and audit committee. Results indicated there is a negative relationship between earning management with independence of board of director and audit committee. His results also highlighted that the more active the audit committee will reduce earning management. Siregar and Utama (2008) have concluded that family ownership have significant effect and type of adopted earning management. Firms with high ratio of family ownership and independence to business groups have more willingness to select efficient earning management than other firms.

Jiraporn *et al.* (2008) addressed that there is an inverse relationship between agency costs and earning management and firms which manage earning broadly (limited) are suffered lower (higher) agency costs.

In addition there is a positive and significant relationship between firm value and amount of earning management.

By considering these two cases the researchers claim that at large management is not prejudicial.

RESEARCH METHODOLOGY

Community and samples: The current study covers all listed companies on Tehran Stock exchange during 2004-2010 with following conditions:

- Comapny should be listed on Tehran Stock Exchange from the beginning of financial year of 2003.
- Sample companies would not be among financial (banks) and investment companies.
- Sample companies have not been stopped during 2003 to 2010 permanently.
- Sample companies have not been changed their financial year during 2003 to 2010.

Research hypotheses: According to the mentioned research problem the following hypotheses are postulated in the study:

- There is a significant relationship between auditor change and type of auditor in earning management.
- There is a significant relationship between corporate governance variables (type of ownership, number of main stockholders, percentage of largest stockholders ownership, and percentage of main stockholders ownership) with earning management.
- There is a significant relationship between earning management incentives (political casts, equity-debt ratio, leverage, tax) with earning management.
- There is a significant relationship between financial rations (performance coefficient, changes in net income, gross income to sale ratio and current ratio) with earning management.
- There is a significant relationship between firm sizes with earning management.

Sub-hypotheses:

- There is a significant relationship between of ownership and earning management.
- There is a significant relationship between percentage of largest stockholder ownership with earning management.
- There is a significant relationship between number of main stockholders with earning management.
- There is a significant relationship between percentage of main stockholder ownership with earning management.
- There is significant relationship between equity-debt ratio with earning management.
- There is s significant relationship between leverage with earning management.
- There is a significant relationship between Tan with earning management.
- There is significant relationship between political costs with earning management.
- There is a significant relationship between changes in net income with earning management.
- There is a significant relationship between gross income to sale ratio with earning management.
- There is a significant relationship between current ratio with earning management.
- There is a significant relationship between performance coefficient with earning management.

Research variables : Dependent variable or model output would be the discretionary accruals calculated by cross sectional Jones adjusted model.

Thus, in present research it needs to separate the companies which managed earning from other companies. But due to it is not possible to distinguish the companies which managed earning easily the cross-sectional Jones adjusted model have been used to determine model output or estimate discretionary accruals.

Before fitting cross-sectional adjusted Jones regression model it need to calculate total accruals.

Total accruals could be calculated by using balance sheet procedure and loss and income procedure.

In this research the loss and income procedure have been used and it is as follow:

$$TA_{it} = EARN_{it} - CFO_{it}$$

TAt $\quad$ = Total accruals
EARNt = Income before extra ordinary items.
CFot $\quad$ = Operating cash flow (cash flows from operational activities)

Then, discretionary and non-discretionary accruals have been obtained through following regressions fitting:

$$\frac{TA_{ijt}}{A_{ijt-1}} = \alpha_{it1}\left(\frac{1}{A_{ijt-1}}\right) + \alpha_{it2}\left(\frac{(\Delta REV_{ijt} - \Delta REC_{ijt})}{A_{ijt-1}}\right)$$
$$+ \alpha_{it3}\left(\frac{PPE_{ijt}}{A_{ijt-1}}\right) + \varepsilon_{it}$$

Aitj-1 $\quad$ = Total assets in the beginning year.
REVijt $\quad$ = Change in annuals revenue (difference in each year and revenue and same year beginning revenue).
RECijt $\quad$ = Change in receivables (difference in receivables for each year and with same year beginning receivables). PPEi,j,t = Plant, equipment, property (each year fixed assets after deduction of accumulated depreciation in the same year).
$\propto 1$, $\propto 2$, $\propto 3$ = Coefficients at model.
ϵt $\quad$ = Error at model
i $\quad$ = Industry
j $\quad$ = Sample firm in industry i

then, the discretionary accruals is obtained through following equation:

DAt $\quad$ = TAt-NOAt
DAt $\quad$ = Discretionary accruals
NDAt $\quad$ = Non-discretionary accruals
Independent variables in this research are as follow:

- **Current ratio:** It is dividing current assets on current debts.
- **Total debt to equity ratio:** divide total debt on equity.
- **Financial leverage:** dividing long-term debts on total equity and long- term debts.
- **Firm size:** natural logarithm of total assets.
- **Political costs:** natural logarithm of number of employee.
- **Ratio of firm performance:** Dividing average operating cash flows on total assets.
- **Changes in net income:** dividing difference of current period net income and previous period net income on previous total assets.
- **Ratio of gross income to sale:** dividing gross income on sale.

Percentage of ownership at largest shareholder.

- **Number at main shareholders:** number at shareholders with ownership more than 5%.

Percentage of owner ship at main shareholders.

- **Type of ownership:** if the ownership is government its value is zero and otherwise it is one.

- **Auditor change:** if it change it take one value and otherwise it is zero.
  Industry code Tax.

DATA ANALYSIS AND TESTING OF HYPOTHESES

In the study, data analyses have been performed both by using data gathering analysis and data cross-sectional analysis methods. To investigate the relationships between variables by using regression method first the model have been fitted by presence of all variables and then after omitting additional variables by using back ward method an useful model have been presented. Fitted regression model on data is as follow:

$$DTA_i = \alpha_0 + \alpha_1 \times Ind_i + \sum_{j=2}^{k} \alpha_j \times X_{ji} + \varepsilon$$

In above model DTAt and Indt would be discretionary accruals and industry type respectively and other independent variables have been exhibited as Xjt which Xjt is independent variable jth for firm ith and K is the number of dependent variables (16 variables) in the model and X i is model coefficient.

In terms of industry dummy variable, in above model it has been presented as separate from other variables. Also, finally it was investigated by model by presence of independent variables and their interaction with type of industry. Mentioned model would be as follow:

$$DTA_i = \alpha_0 + \alpha_1 \times Ind_i + \sum_{j=2}^{k} \alpha_j \times X_{ji} + \sum_{j=2}^{k} \alpha_{j+k-1} \times Ind_i \times X_{ji} \times \varepsilon$$

In Table 1, values of correlation, coefficient of determination and p-values among variables have been provided based regression analysis:

Table 1: Results of regression analysis

Variable	Sectional							
	2010	2009	2008	2007	2006	2005	2004	Cumulative
Coefficient of determination	0.287	0.25	0.382	0.301	0.316	0.322	0.356	0.183
Industry	0.462	0.979	0.74	0.708	0.468	0.907	0.971	0.396
Change of auditors	0.299	0.43	0.422	0.513	0.148	0.188	0.676	0.227
Type of auditors	0.204	0.139	0.659	0.718	0.543	0.922	0.456	0.032
Type of property	0.572	0.65	0.566	0.283	0.876	0.096	0.428	0.728
Coefficient of performance	0.083	0.00	0.00	0.00	0.004	0.000	0.000	0.000
Gross profit to sale	0.165	0.251	0.007	0.006	0.392	0.422	0.088	0.000
Tax	0.182	0.401	0.514	0.369	0.548	0.52	0.398	0.103
Current ratio	0.106	0.225	0.00	0.137	0.106	0.151	0.026	0.000
Debt to capital	0.235	0.407	0.737	0.396	0.028	0.404	0.993	0.064
Financial leverage	0.27	0.238	0.747	0.502	0.063	0787	0.746	0.867
Size of company	0.362	0.27	0.95	0.962	0.001	0.049	0.823	0.012
number of staff	0.079	0.342	0.674	0.166	0.007	0.714	0.494	0.373
ownership of shareholders	0.902	0.622	0.478	0.557	0.136	0.119	0.969	0.405
Shares of major shareholders	0.652	0.741	0.705	0.49	0.544	0.167	0.728	0.623
Percentage shares of major shareholders	0.92	0.98	0.618	0.826	0.15	0.754	0.768	0.660
Percentage change in net profit	0.052	0.194	0.077	0.216	0.053	0.061	0.006	0.000
Jone's of the year before	0.382	0.387	0.348	0.141	0.354	0.784	0.155	0.417

Table 2: Results of the study

Variable	Sectional							
	2010	2009	2008	2007	2006	2005	2004	Cumulative
Coefficient of determination	0.12	0.121	0.295	0.168	0.139	0.207	0.312	0.16
Industry	×	×	×	×	×	×	×	×
Change of auditors	×	×	×	×	×	×	×	×
Type of auditors	×	×	×	×	×	×	×	×
Type of property	×	×	×	×	×	×	×	×
Coefficient of performance	0.001	0.00	0.00	0.019	×	0.00	0.00	0.000
Gross profit to sale	×	×	0	0.015	×	0.001	×	0.000
Tax	×	×	×	×	×	×	×	×
Current ratio	0.025		0		0.019	0.037	0.007	0.000
Debt to capital	×	×	×	×	×	×	×	×
Financial leverage	×	×	×	×	0.015	×	×	×
Size of company	×	×	×	×	0.00	0.004	×	0.004
Number of staff	×	×	×	×	0.038	×	×	×
Ownership of shareholders	×	×	×	×	×	×	×	×
Shares of major shareholders	×	×	×	×	×	×	×	×
Percentage shares of major shareholders	×	×	×	×	×	×	×	×
Percentage change in net profit	0.04	0.015	×	0	×	×	0	0.294
Jone's of the year before	×	×	×	×	×	×	0.004	×

Table 3: The results of coefficient regression

Variable	Sectional			
	2009	2007	2006	Results
Coefficient of determination	0.266	0.227	0.283	0.302
Change of auditors in industry	×	×	×	0.039
Type of auditors in industry	×	×	0.004	0.012
Coefficient of performance	0	×	×	0.000
Coefficient of performance in industry	0	0.01	×	0.000
Gross profit to sale	×	×	×	0.000
Current ratio	×	×	×	0.000
Current ratio in industry	×	×	×	0.000
Debt to capital	×	×	×	0.019
Debt to in industry	0.045	×	×	×
Financial leverage	×	×	0.047	×
Size of company	×	×	0.001	×
Percentage change in net profit	0.008	0	0.029	0.000
Percentage change in net profit in industry	0.008	0	0.029	0.033
Jone's of the year before	×	×	×	0.004

But with due attention to lack of significance of some independent variables in the performed regressions it was tried to omit the additional variables from the model by using backward regression and finally the following results have been obtained which shown in Table 2.

In Table 2 the variables which have determined as X signal would be variables that were not significant in the back ward regression and they have been omitted regression steps. In next stage it was tried to investigate interaction regression with industry variable and their results have summarized in Table 3. In this table results of 2006, 2007, 2008, 2009 have been not provided with due attention to lack of significance (insignificant) of interaction regression. And insignificant variables have determined as X.

Based on addressed matters, the proposed final model based on mentioned significant variables in cumulative analysis would be as following:

$$DTA_i = -0.13 - 0.385 \Pr efor + 0.170 G. \Pr o + 0.065 Qrate + 0.008 Size + 0.185 d. net + \varepsilon$$

Based on above model, the sale-gross income ratio, current ratio, firm size, changes in net income have a direct and performance ratio have an inverse relationship with discretionary accruals. And in the following the results from regression model is explained:

According to obtained results the relationship of performance ratio (average operating cash flow on total assets) with discretionary accruals and there fore with earnings management would significant and inverse. Thus it could be concluded that earnings have consisted of two components: cash and accrual.

And management uses accrual component to manage earnings. Therefore an inverse relationship between performance ratio and accruals would be rational.

Meanwhile sale-grass income ratio has a positive relationship with discretionary accruals which could be related to using from credit sales by managers to increase earnings. Also it could be related to replacement in current and capital expenses that is taken into account as preliminary and common instruments in earnings management. Also, current ratio has a positive relationship with discretionary accruals and earnings management in the regression equilibrium. Therefore it seems that Iranian company managers recognize current ratio which users are sensitive to it and thus they attempt to maintain or increase it and for this they enjoy also discretionary accruals.

One of the other variables would be changes in net income which it have a positive relationship with discretionary accruals in the regression model.

It means that as the net income increase the discretionary accruals increase and when the net income decrease, it decrease. On other hand, increase or decrease of discretionary accruals lead to changes net income, therefore it could be concluded that there is a mutual relationship between discretionary accruals and changes in income and this relationship is not necessarily a complete and 100% relationship. And general conclusion is that use of accruals will result in change the net income and therefore earnings management. Of course it should be mentioned that changes in earnings which occur in long term could be due firm strategy that is out of present research discussion.

Firm size is one of the variables which have a positive relationship with discretionary accruals in the regression model.

CONCLUSION

According to present research and contrary to results of prior researches in Iranian companies, it seems that as firm size increase the management has more incentives to use discretionary accruals and earnings increase to provide optimal picture about its performance to shareholders.

This research has examined effective factors on earning management of the listed companies on Tehran Stock exchange during 2004 to 2010.

To analyze it have been used from multiple and backward regression and interaction regression results of performed tests have supported hypotheses from 11 to 15 and it means that performance ratio, sales grass income ratio, current ratio, changes in net income and firm size would be important incentives to manage instrumental earnings in Iranian companies.

But other hypotheses have not been supported in 95% significance level.

Use of adjusted Jones model and investigation of only few variables would be limitations in the present research. Therefore, if other models for earning recognition are used then it is possible the results from present research would be other factors which have had a significant relationship with earnings management but they have not been examined in this research.

Also, effect of external factors such as inflation and political problems have assumed as constant factors.

Meanwhile since data about bonus and beta as well as board of director characteristics was not available completely related (relevant) results was not provided.

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