Studying and comparing the effect of additive earnings management on the predictability of the primary information and revised data

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Abstract: Management's estimates and judgments which may affect the quality of financial reporting is realized in accruals. The knowledge level of management and his capabilities in proper assessment of the future events will result in increasing the quality of estimated accruals. Meanwhile, the quality of financial reports is potentially affected by opportunistic incentives of managers. In the present research the enforcement of ideas of management on accruals regarding additive earnings management will be taken into consideration and the existence of opportunistic incentives of managers will be studied through his obedience of a target earning in order to compare predictability of the numbers reported in the preliminary reports and the revised reports. Our statistical sample includes 120 companies from among firms accepted in Tehran Stock Exchange which have had at least one revision during the years between 2005 and 2010. On the whole, the results showed that the predictability of preliminary accounting information is higher than the information revised in identifying the changes of future cash flows. Also the difference between predictability of preliminary information and the revised information is statistically meaningful.
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1. Introduction

The efficiency of bond markets is based on general information including the information presented in financial statements and other information revealed by the company which is mainly the result of managers' analysis. Managers of companies are among those users of financial statements who are present in the company and thus have more information compared to external users. Managers have access to some information besides financial statements which is considered confidential for the company. Also information is delivered to managers more rapidly and with less cost. Investors, creditors and other users of financial information in companies need information about the future of economic units besides the historical information. Fundamentally optional and obligatory revealing are two communicative canals for managers to transfer information to outsider stockholders. A considerable literature in the field shows that these two types of revealing contain valuable and related information and affect the price of bonds meaningfully (Francis & et al, 2008). Recognizing a debt or an asset or the effects of an exchange on financial statements may not realize all information needed for the users of financial statements. Therefore, users of financial information estimate future cash flows and put it as a basis for decision makings in buying and selling stocks (Ghasemi, 2005). The evidences show that the quality of information published by the managers may be affected by their opportunistic motives. These motives and their role in deviating information affect the predictability of information and may astray the users. The main goal of the present study is to investigate about the opportunistic incentives of managers on predictability of preliminary information and those which have been revised.

2. Statement of the problem

Accounting provides valuable information for investors and other users of financial information. Accounting estimates are among valuable information. Accounting estimations and predictions improve the relationship between financial information and perspectives of the investors of the internal information. Therefore they are potentially useful for the investors (Dichow & et al, 2003). But we should know that accounting estimates which are reflected in accruals are prepared by managers and the quality can be affected by their opportunistic incentives. The enforcement of ideas by a anger on the figures reported results from the optional nature of some financial reporting approaches. Therefore management has some authority to recognize accruals. This authority may be used to signal private information or used opportunistically for earnings management. Since management may probably have important information about the production ability of

the future cash flows of the company it is expected that signaling increases the earnings power to measure the efficiency of the company (Badertscher & et al, 2011).

There are some evidences that optional accounting approaches affected by opportunistic incentives can affect the results of contracts based on accounting figures. Hilly (1986) and Hutasen & et al (1995) have found evidences through which management changes optional accounting approaches to increase the rewards paid opportunistically. Also Swini (1994) showed that management manipulates accruals to overstate net earnings and assets to avoid violating debt contracts. Such ideas are affected by the opportunistic incentives of managers and lead to deviations in the figures reported about the real events and violates predictability of figures. Meanwhile, some optional accrual approaches are based on accepted accounting principles and fall in the limits of these principles. Most rules based on accepted accounting principles authenticate some levels of flexibility, interpretation and judgment in selecting certain approaches of financial reporting and accounting estimates for the managers. Some other approaches fall out of the limitation of accepted principles and are considered as violating the regulations and finally lead to revisions of figures by the designers of accounting standards or auditors. These revisions are the results of choosing some financial reporting approaches along with accepted accounting principles which are considered as the incorrect utilization or errors in utilization of these principles (Badertscher & et al, 2011). Thus, they are independent to opportunistic incentives of managers and in this research we will try to isolate them from revisions resulted from opportunistic motives of managers. On the whole, it is expected that approaches related to optional accruals created due to some reasons result in revisions of accounting figures finally. Because the perspective of managers about the authorized accepted accounting principles can be different from those accepted by the designers of these principles about the authenticity of some approaches. Anyway, if the selection of optional accounting approaches is affected by opportunistic motives of managers it is expected that the preliminary reported accruals (managed) will have a less ability to predict future cash flows than the revised figures. Because the intentional interference of management in accounting process to achieve reward or ignore the limitations of the debt contract will cause more deviations from the figures based on accrual accounting of real events.

According to the discussion above, it is predicted that if management considers the achievement of earnings goals in choosing optional accounting approaches, the informative role of the accruals resulted from these choosing is violated and their predictability to estimate future cash flows will decrease. Meanwhile, the revised figures are without the opportunistic idea enforcements of the managers and probably have more predictability values. In the present research the enforcement of ideas by management on optional accruals will be considered regarding additive earnings management and thus the existence of opportunistic incentives of managers through his obedience of a target earning will be investigated to compare the predictability of the preliminary reported figures with the revised ones. Therefore, the main research problem will be stated as follows:

What is the difference between the ability of the preliminary figures reported and the ability of figured revised in predicting future cash flows?

3. Research Literature

Lorek & Willinger (2009) studied the ability of past operational cash flows and past operational earnings to predict future operational cash flows. The results showed that past cash flows can do a better prediction than past operational earnings about future operational cash flows. And usually this prediction is done more accurately in big companies compared to the small ones.

Bowen & et al (2009) found out that investors pay more attention to cash flows than accruals. The result of this research showed that the information related to cash flows has an additive content of information compared to the earnings. Also the information related to cash flows has an additive information content compared to earnings information and flowing capital resulting from the operations concurrently and the information related to earnings accrual flows and flowing capital resulting from the operations have additive information content both in isolation and in groups compared to cash flows.

Badertscher & et al (2011) used a sample of revised financial statements of the companies to categorize the companies based on the opportunistic incentives of managers in changing optional accruals in a research about optional accounting approaches and predictability of accruals regarding future cash flows. They showed that considering earnings management based on opportunistic motives of managers the preliminary earnings reported and accruals' constituents have a less predictability to estimate future cash flows compared to revised figures. However, this resulted in a vice versa result compared with the results. They found out by studying more on manages' motives that they have been stronger in choosing optional accounting

approaches which were stronger than contractual motives.

Kordestani & Lotfi (2011) studied the relationship between management prediction error of the future earnings of the company and the current year's accruals. They reasoned that due to lack of assurance in operational environment, the estimations of managers of the business overview of the company is not complete. Regarding the incomplete estimations of managers both in creating accruals and in earnings prediction processes are affected. We presuppose that when accruals are relatively high (low), the management's prediction of the earnings will entail more optimism (pessimism). The findings of the research showed that there is a positive relationship between accruals and prediction error of management about earnings. Also the results showed that this positive relationship is more in companies which have more fluctuations in operational cash flows.

Khajavi & Zare (2012) studied the relationship between the reported earnings' quality and the revised earnings in a research paper. They reasoned that earnings revision entails the concept that the reported earnings (in past periods) have been an incorrect amount and thus needs modification. Since the reported earnings have taken into consideration the question arising would be: "How is the quality of the reported earnings' quality (and containing errors)"? To do so, 144 firms accepted in Tehran Stock Exchange during the time period between 2002 and 2009 were investigated. In this research they used the two criteria of predictability and earnings permanence to measure the quality of earnings. The research methodology is regression and t test. The results of the research showed that the quality of the earnings revised compared to the reported earnings has a more permanence and predictability.

4. Research Hypothesis

There is a difference between predictability of the preliminary reported information and the revised information in opportunistic additive earnings management.

5. Research Methodology

The research method in the present research is descriptive and correlation. Descriptive because its goal is to describe the conditions or phenomena under investigation or get more knowledge to acknowledge the current situation. And it is correlation type because in this research we only consider the relationship between variables. The present research studies the relationship between variables and tries to prove this relationship at the present status based on historical data. Thus, we can categorize it as post incidental type. in such researches, the researcher studies the cause and effect (dependent and independent variables) after the event. This research is applied and the effect of reporting behavior of managers in profit units is taken into consideration regarding predictability about information quality.

6. Population and Research Statistical Sample

The statistical society of the present research entails all companies accepted in Tehran Stock Exchange. To make the statistical society convergent in administering the hypotheses' tests administration and generalizing the results, the following conditions were considered regarding the members of our statistical society.

1) During research period, they should be present in capital market.
2) The end of fiscal year of the company should be end of Esfand (21st. March).
3) The company should not have fiscal year changes.
4) The trademark of the company should be active and should not have more than 4 months of transaction stops.
5) The financial information of the company should be available during the period under investigation.
6) The companies should have at least more than once information revisions.

As a result of applying the conditions and observations about systematic deletion sampling, 120 companies were selected from among the statistical society to do the tests. The research period was a successive 6 years period. Therefore, the sample entails companies which have revisions during those years. Thus, the final amount of sample was 478 year-company.

7. Research Variables

7-1- The dependent research variable

The dependent research variables of the present research are predictability of preliminary and revised accounting information. Predictability is the ability to present practical functions (such as predictions) and the possibility of approving the predictions through experimental documents which are gained afterwards. In the present research the predictability of information about the predictions of future cash flows is taken into consideration. This variable is measured through the identification of the relationship between future cash flows (t+1 period) and current cash flows (t period) through a regression model.

7-2- The independent research variable

The independent variable of the present research is the opportunistic additive earnings behaviors of management. The effect of this variable

on the ability to predict information through isolation of a statistical sample is studied based on what mentioned above and the adjustment of a regression model for hypotheses' test in each of the statistical groups of the sample.

First companies were considered as the original sample of the research that had revised accounting earnings during the research period. Then companies which have revised them during only one year of the research period have been omitted from the statistic sample, because accruals have returning characteristic during one year or less than it. The opportunistic characteristic of accruals management is determined by opportunistic meet-or-beat and it refers to those companies whose accounting approach selections were affected by the opportunistic incentives of the managers.

If the preliminary earnings reported in the group belonging to opportunistic meet-or-beat is equal to or more than the predicted earnings the manager has followed a predetermined or target earning which reflects his certain incentives in determining the strategies related to accruals. In other words, a manager tries to show the status in a company desirable when prediction of earnings is carried out. Also sine it is presupposed that the revised earning is without any error and opportunistic motives of the managers if the preliminary earning reported is more than the revised one the earning management is additive and thus year-companies where the following conditions are present belong to the group of opportunistic meet-or-beat.

$$OI \geq MF > RI$$

OI: Preliminary earnings reported
MF: management's earnings prediction
RI: revised earnings

8. Research Hypothesis's Testing Method

In the present research the theoretical framework of Barth & et al (2001) research has been utilized in order to analyze earnings and study the usefulness of the elements of accruals and cash flows in predicting future cash flows. Also the theoretical framework of Barth & et al (2001) research has been utilized to study whether the relatedness of the optional approaches of accruals with managers' opportunistic motives is a reason for difference in the ability to predict the future cash flows or not. Barth & et al (2001) showed that the accumulated earnings hide different parts of accruals and presented some evidences that the isolated accruals in 5 parts can enhance the ability to predict earnings for the prediction of future cash flows. These researchers showed that every part of accruals is predictably related with future operational cash flows. In other words, assets' accruals (debts) have a direct (reverse) relationship with future operational cash flows.

According to Barth & et al (2001) the parts of accruals are altered in the regression model of predicting future cash flows and finally the present research hypotheses' testing pattern will be posed as follows:

$$CF_{jt+1} = a_0^k + b_1^k CF_{jt}^k + b_2^k \Delta AR_{jt}^k + b_3^k \Delta INV_{jt}^k + b_4^k \Delta AP_{jt}^k + b_5^k DPAMT_{jt}^k + b_6^k OTHER_{jt}^k + \varepsilon_{jt}^k$$

CF : Cash flow
AR : Δ Change in accounts receivable
INV : Δ Change in Inventory
AP : ΔChange in Accounts payable
DPAMT : Depreciation cost
OTHER: surplus totals other accruals which are calculated as follows:

$$OTHER = EARN - (CF + \Delta AR + \Delta INV - \Delta AP - DPAMT)$$

The regression pattern above is adjusted in the group of the statistical sample companies and the results based on the coefficients calculated for each of the prediction variables and authority descriptive criteria of the regression model are compared.

9. Research Hypothesis's Testing Results

9-1- Results of descriptive analysis of the research variables

The statistical sample of the research based on the motives of managers are divided into two groups and in every group the ability to predict preliminary information and revised information to predict future cash flows were estimated through the regression.

The results presented in the tables above show that from among the statistical sample of the research, 39 year-company have had additive opportunistic earnings management, and 272 year-company we categorized as additive non-opportunistic earnings management.

9-2- Studying the Normality of Research Variables

In the present research, the normality of all variables entered into regression models were investigated in the total data level.

Table (1): Results of descriptive analysis of the research variables (opportunistic additive earnings management)

	Variables	No.	Minimum	Maximum	Average	Criterion deviation
Preliminary information	Cash flow in period t+1	39	-0.1376	19421	0.488600	0.5520749
	Cash flow in period t	39	-0.7189	15957	0.383867	0.5236949
	Change in accounts receivable	39	-0.8976	0.4486	-0.006710	0.2824265
	Change in Inventory	39	-0.3163	22292	0.103679	0.3838987
	Change in Accounts payable	39	-0.7178	0.6983	0.003813	0.2132000
	Depreciation cost	39	0.0008	0.4082	0.071266	0.0910763
	Other items	39	-24404	11280	-0.073195	0.6641893
	Variables	No.	Minimum	Maximum	Average	Criterion deviation
revised information	Cash flow in period t+1	39	-.1376	1.9421	.488600	.5520749
	Cash flow in period t	39	-.7189	1.5957	.383867	.5236949
	Change in accounts receivable	39	-.8976	.4486	-.006710	.2824265
	Change in Inventory	39	-1.0536	.5933	-.001390	.2768684
	Change in Accounts payable	39	-.7177	.6983	.003803	.2131995
	Depreciation cost	39	.0008	.4082	.071266	.0910763
	Other items	39	-1.2649	1.7225	-.028164	.5792914

Table (2): Testing the normality of the research data

Variable	Kolomogorov-Smirnov test		
	test stat	freedom degree	meaningfulness level
Cash flow in period t+1	0.074	476	0.091
Cash flow in period t	0.071	476	0.093
Change in accounts receivable	0.061	476	0.114
Change in Inventory	0.088	476	0.076
Change in Accounts payable	0.097	476	0.086
Depreciation cost	0.201	476	0.000
Other items	0.074	476	0.099

Regarding the results above the meaningfulness level achieved by Kolomogorov-Smirnov test which is more than test error level (α=0.05) for all variables except depreciation cost we can accept $H_0$of the test about these variables. Thus, the amounts related to the dependent variable and most independent variables is a basis for a distribution close to the normal distribution.

9-3- Results of Testing Research Hypothesis

According to the topic and main goal of the present research in first hypothesis it was claimed that there is a difference between predictability of information reported primarily and revised in additive opportunistic earnings management sample. To test research hypotheses a regression model of hypotheses testing in every sample isolated according to managerial incentives has been adjusted once based on preliminary and one based on revised information. After adjusting the models their predictabilities were investigated through the comparison of identification coefficient and square root of model errors. Thus, to compare the predictability of adjusted models statistically we have used Wang's (1989) test which is a corrective coefficient.

The results of statistic tests above for the first research hypothesis are brought in table (3).

Table 3. Opportunistic additive earnings management

(1-1) opportunistic additive earnings management(Preliminary information)					
R^2	D-W			F آمـاره	F (p-value)
0.335	2.015			14.193	0.003
Variable	β	t test	p-value	co-linearity tests	
				Tolerance	variance amass factor
CF	0.825	3.85	0.001	0.681	1.323
ΔAR	20.47	2.024	0.041	0.621	1.414
ΔINV	0.729	2.749	0.010	0.649	1.319
ΔAP	0.15	0.726	0.473	0.607	1.456
DPAMT	-0.039	-0.231	0.819	0.622	1.608
OTHER	1.109	2.899	0.007	0.62	1.36

opportunistic additive earnings management (revised information) (1-2)			
R^2	D-W	F آماره	F (p-value)
0.295	2.010	13.654	0.007

Variable	β	t test	p-value	co-linearity tests	
				Tolerance	variance amass factor
CF	0.846	3.519	0.001	0.621	1.315
ΔAR	0.431	1.636	0.112	0.667	1.346
ΔINV	0.431	1.946	0.060	0.679	1.339
ΔAP	0.076	0.338	0.737	0.671	1.392
DPAMT	-0.021	-0.119	0.906	0.604	1.655
OTHER	0.834	2.362	0.024	0.649	1.328

In first part of the table above the results of adjusting the summery of regression models are presented. The results show that the regression identification coefficient based on preliminary information is 0.335 and the regression identification coefficient based on revised information is 0.295. Accordingly it is observed that predictability of preliminary information is much more than the revised information. Durbin-Watson's statistics for both models is between 1.5 and 2.5. Thus, there is not a self-correlation between errors of regression models.

The second part of table (3) shows the results of statistical analysis for the coefficients of independent variables of the regression pattern. These results show the type, toughness, validity and meaningfulness of the relationship of each of the independent variables entered into the regression pattern with dependent variable. The results of co-linearity tests which are entered into the two last columns of the second part of the table show a trivial co-linearity between some independent variables because the amounts of statistics are farther from number 1. The independent variables of the research reflect accruals and the existence of a trivial co-linearity between these items is natural and it does not threaten the validity of our model. The results show that in preliminary information model the variables of current cash flow, change in accounts receivable, change in inventory and other accruals are meaningful statistically and their relationship with future cash flow is direct. This is due to the fact that the meaningfulness level of them is less that 0.05 (error level of the test). Meanwhile, in revised information model only current cash flow and other accruals are meaningful in a %95 level and the variable of change in inventory is meaningful in a %90 assurance levels. Generally, the comparison of the statistics of descriptive power of the models show that predictability of preliminary information in predicting future cash flows is superior in opportunistic additive earnings management sample. To achieve the valid statistical results the predictability of the adjusted models were investigated through Wong's (1989) testing. This test is done through the statistic software called SAS.

Table (4): Results of Wong's test for the adjusted models in opportunistic additive earnings management sample

Model	Adjusted R^2	Z Wong's stat	Meaningfulness level of Wong's test
(1-1) Preliminary information	0.335	3.57	0.000
(2-1) Revised information	0.295		

Regarding the results, Meaningfulness level of Wong's test is less than 0.05 and H_0 is rejected. Thus, we can conclude that predictability of preliminary information is meaningfully higher than predictability of revised information. Therefore, the first research hypothesis and the claim posed in it is accepted with an assurance level of %95.

10. Conclusions

The results of testing the first research hypothesis showed that there exists a difference between predictability of the preliminary information reported and the revised information in opportunistic additive earnings management. This finding showed that predictability of information reported primarily in predicting future cash flows is more than the predictability of information in revised form. These findings contradict with the theoretical foundations of the research and the research results of Badertscher & et al (2011). These researchers found out that in opportunistic additive earnings management sample, the predictability of revised information is more than preliminary information prediction and reasoned that when managers try opportunistically to manipulate financial figures through optional accruals the predictability of the managed accruals to predict future cash flows will be less than the revised information (not managed) one. On the other hand,

some theoretical evidences show that revision is effective on financial reporting behavior of managers and reduces the incentives of managers to present information which can help users in predicting future events. Atrag & et al (2012) found out that revision will result in reducing the tendency of managers to publish earnings predictions. The findings of the first hypothesis can accord with those of Atrag & et al (2012) and we can conclude that revised information may also be affected by fame and validity of managers in presenting information to users and their concerns about lack of precision of the information. The reason for incompatibility of the results of the first research hypothesis with those findings of Badertscher & et al (2011) can be traced back in facilities and opportunities of managers of statistical sample companies to use optional accruals during the company's lifetime. It seems that when managers do additive earnings management opportunistically incentives for working more in order to enhance firm efficiency are reinforced. This is due to the fact that continuing the trend additive earnings management is impossible during the lifespan of a company and accruals' management should stop in a time span due to the accumulation of these items in financial statements. Thus, Richardson & et al (2002) showed that managers are aware of the additive earnings chain 3 years before the stop and act to modify the financial and operational strategies. Accordingly managers in our statistical sample may do efforts to improve future cash flows by knowing about the possibility of stopping the probability of utilizing accruals which result in increasing predictability of the preliminary reported information.

11. Applied Suggestions derived from the research

The following suggestions are presented in applied field regarding the findings resulted from testing the research hypotheses:

- ✓ We suggest mangers of corporate companies to use past experiences or their specializations in order to estimate future events properly and put a great importance on exact assessment of factors effective in the reports to reduce the amounts of revisions in financial reports.
- ✓ We suggest investors and users of financial information to try to make investment decisions based on the preliminary information besides considering the revised information and assessing information environment of the companies and use information to estimate future cash flows because it was proved that predictability of preliminary information is more than the revised information.

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