The effect of restatements of financial statement on earnings management: Evidence from Tehran Stock Exchange (TSE)

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Abstract

This study examines the relationship between financial restatements and earnings management. The research sample consisted of 339 companies listed on the Tehran Stock Exchange (TSE) from 2010 to 2017. The modified Jones model (1995) and Kasznik model (1999) are used to measure accruals earnings management and Roychowdhury's model (2006) is employed to measure real earnings management. The results suggest that there is a significant association between restatement and accruals/real earnings management. Further, a significant difference is observed between earnings management in the restatement period and the earnings management before restatement period in terms of the amount of real earnings management. However, there is no significant difference in the absolute value of earnings management. Moreover, there is a positive and significant relationship between income-decreasing restatement and the relative amount of accruals earnings management, but this relationship is negative and significant in terms of absolute value of earnings management and the amount of income-decreasing restatement.

Keywords: restatement, accruals earning management, real earnings management, Iran.

1.Introduction

Investment is the foundation for economic growth. With the expansion of the global economy and competitive interests of various parties, there has been an urgent need for transparency in accounting disclosure. Accounting disclosure, as one of the key concepts and principles that play a crucial role in enriching the value of data and information in financial statements, is used in investment decision making and financing. The users of these statements, who benefit from the provided data, include current and future investors, analysts, tax authorities, creditors, etc. There are some factors that wield great influence on the reliability of financial statements, most notably the exclusion of important accounting errors from financial statements. When items on financial statements of previous years are restated due to balance adjustment of these items or change of classification, this process of referred to as financial restatement. Most companies are subject to financial restatements. This is due to accounting errors, whether intentional or unintentional. In this case, the company in question is obliged to revise the financial statements and amend the errors.

The main reasons for the restatement of an entity's financial statements are divided into two types: the change of accounting procedure and the correction of errors in previous periods. In the event of a critical error in the financial statements of previous periods, and if the accounting procedures in the current period diverge from those of the preceding periods, the financial restatement would be essential (Iranian Accounting Standard (6) paragraph (37)).

Callen et al. (2006) revealed that investors react negatively to the re-statement of financial statements because restating an entity's financial statements indicates its flawed accounting system. An important accounting error in the financial statements will undermine the level of trust in the provided data, and in this case, the financial restatements shall be required to rectify errors. From the perspective of financial statements' users, financial restatements suggest a problem that the management intends to manipulate in actual activities and conceal via financial restatements.

The restatement of financial statements is one of the executive tools for earnings management. In this respect, earning management denotes manipulating accounting reports in a way that accounting rules and standards are not violated.

Earnings management involves the changes in the financial reports to mislead shareholders about the financial position of an organization or influencing contractual outcomes, which are dependent on reported accounting figures (Healy & Whalen, 1999). In other words, earnings management is a technique for attracting investments adopted by corporate executives. It offers an unrealistic picture of the corporate performance by maximizing its profit in order to convey a false impression to investors and draw in their capitals.

The tendency of earnings management has been increasing due to the adverse economic effects induced by financial crisis. In this regard, managers

are largely concerned with the flexibility of accepted accounting standards as they often do not breach professional principles. Gunny (2010) states that earnings management is either implemented through manipulating estimate techniques within the framework of accepted financial standards or manipulating their real activities.

The generally accepted accounting standards enable managers to choose from among accounting policies, which may result in the manipulation of financial statement by managers. In some cases, changing one accounting policy to another may influence the final outcomes of a company's performance (for example, changes in the inventory assessment policy or the assessment policy of fixed assets depreciation and the like). In general, transition from one specific accounting policy to another does not constitute a violation of accounting standards.

This paper contributes to the literature on the relationship between restatements and earnings management in two ways. First, it exams the effect of restatements on the accruals earnings management by two of the most commonly used earnings management models in the literature, modified Jones model (Dechow et al., 1995) and the Kasznik model (1999). Second, it exam the effect of restatements on the real earnings management by model of Roychowdhury (2006), to measure real earnings management, three criteria of abnormal operating cash flow model, abnormal production cost, and abnormal operating costs were used. They are computed from the residuals derived from the cross-sectional estimation models for each industry over a particular year. What really sets this paper apart from other studies is that in this research, earning management has been measured with five different models.

This paper is organized as follows. Section 2 elaborates on the theory. Section 3 describes the methodology. Section 4 presents the results, and conclusion of this paper is in section 5.

2. Theoretical foundations and research development

Previous studies have explored variables that influence or are influenced by earnings management. Divergent results have been reported about the relationship between restatement of financial statements and earnings management as well as the nature of this relationship. Richardson et al. (2002) revealed that firms restating their earnings have high market expectations of future earnings growth as well as significant debt levels. Also, the main motivation for earning manipulation is the tendency for low cost external financing. In addition, companies that have restated their financial statements seek to maintain a positive continuous earning growth chain and retain positive quarterly earnings. In this respect, the evidence is in line with the capital market pressures, which acts as a driving factor for companies in applying aggressive accounting policies. Finally, accruals data, especially operational and investment accruals, are key indicators of earning manipulation, which induce restatement. The study of Callen et al. (2006) has

shown that market responses to restatement induced by errors are generally negative. Restatements in periods of earnings reduction or earnings lower than rivals in the same industry are associated with opportunistic management behaviors and operational problems. Accordingly, their results suggest that not all restatements are alike. Accounting errors seem to be a source of concern for corporate shareholders, especially if errors represent a deliberate attempt on the side of management to mislead some, if not all, stakeholders. Changes in accounting principles that lead to a restatement are probably less indicative of earnings management. Gertsen et al. (2006) acknowledged that the restatement of financial reporting by corporations has been steadily on rise in recent years. It has debilitated public trust in large corporations, and in some cases, restatement has led to the downfall of these companies.

In this research, aggravating factors are identified and their mitigating measures are introduced. The purpose is to define guidelines and provide insights into managerial behaviors, which can tone down the adverse ramifications of restatements. According to results, the intensity of financial restatements is determined by two factors: (1) the degree of distortion (i.e. the potential effect of restatement on the future financial outlook of the company); (2) the degree of malicious tendencies. The results of Ahmad and Goodwin's (2007) research illustrated that statistics on the three major motives of restatements (including changes of accounting procedures, revisions to estimates, and errors and uncertainties) account for 49%, 40%, and 11% respectively of the sample. Their research findings exhibited that companies restating their financial statements had more growth opportunities than companies without restatements. In general, the restatement of financial statements is negatively linked to market value and non-market value. Ettredge et al. (2010) revealed that in non-fraudulent corporate restatements, balance sheet bloat was higher than control firms two years prior to the initial misstated financial report. However, these firms have lower aggregate balance sheets than firms with clearly fraudulent restatements, indicating that there is significant, but not inclusive, earnings management, even in apparently fraudulent restatements.

This analysis was also extended to discretionary accruals and real earnings management. Badertscher et al. (2012) provided evidence that almost one third of restatements are probably not the result of opportunistic earnings management. Instead, their evidence suggested that in the absence of opportunistic incentives, a large portion of the accruals selection leading to restatement was apparently driven by information that enhanced the expected worth of discretionary accruals. Hu et al. (2015) used first-time restatements to investigate earnings management practices for various motivations and goals, selecting firms with misstated financial reporting as the sample to investigate conforming or non-conforming earnings management by measuring the difference of tax accounts between initially reported financial statements and the re-stated financial statements and to measure the amount of pre-tax earnings management in a more precise manner.

They declared that their research provided new perspectives and theoretical evidence for exploring the choice of conforming and non-conforming earnings management by listed companies. They also stated that their results would be useful to lawmakers to strengthen the management of the restatement among listed companies.

Harris et al. (2018) examined whether meeting or slightly beating an earnings benchmark is (1) significantly linked to irregularities in accounting methods;(2) is suitable for identifying accounting irregularities, whether incremental or relative to the level of discretionary accruals, and (3) more beneficial for identifying opportunistic accounting irregularities (the more detrimental form of earning distortion). They considered a sample of accounting irregularities in which earnings had been restated due to intentional misreporting and a control sample in which restatement had not been conducted. Their findings suggested firms that had slightly beat earnings benchmark were more likely to have irregularities in accounting practices. In Iran, however, there are still many studies.

Given the above, it can be said that a firm with restatement is more likely to attract the attention of auditors, supervisors and analysts. As a result, the firm's market position is debilitated and the information symmetry widens. However, management should take steps to improve market status and restore investor and user's trust in financial statements. Previous studies have shown that there is a negative relationship between information disclosure and asymmetry (Brown & Hilgist 2007; Lang & Lundholm 2000; Ballesteros et al. 2017). Therefore, reduced information asymmetry impairs the ability for earnings management. These findings have been confirmed by Dadbeh & Mogharebi (2013) and Jiraporn et al. (2008), with their results suggesting that information asymmetry is positively related to earnings management. Therefore, in this study, various aspects of previous studies regarding the relationship between restatements and earnings management are investigated. Accordingly, the hypotheses of this study are as follows:

H1: Earnings management in firms that restate their financial statements is different from other firms.

H2: Earnings management in the period of restatement of financial statements is lower than its previous period.

H3: There is the negative relationship between the amount of restatement and earnings management.

3. Methodology

3-1. Sample and data

Our sample consists of (339) firms listed on the Tehran Stock Exchange (TSE) from the second quarter of 2010 to the first quarter of 2017. We obtain our data from previous dissertations submitted in Iran or other countries, seminal professional books and journals, both domestic and foreign monthlies and quarterlies, authoritative online databases. Moreover, for gathering financial reporting of listed companies in the Tehran Stock Exchange, Rahavard Novin Software, Codal website and Tehran Stock Exchange website were used. Investing firms with a special field of expertise (financial intermediary, investment) were

excluded. Furthermore, Firm years that their data are not available during the study period. Our final sample consists of 1328 firm-year observations.

3-2. Earnings Management Models

In this study, we measured dependent variables which are, accruals earnings management and real earnings management, as described below.

Accrual Earnings Management

In this study, accruals earnings management is calculated using two methods of modified Jones model (Dechow et al., 1995) and the Kasznik model (1999) as follows.

Modified Jones Model (1995)

This model was developed by Dechow et al (1995). According to their research, the modified Jones model is the most powerful method to describe and predict earnings management. In the modified Jones model, the total accruals are calculated as follows:

Model (1)

$$TA_{i,t}/A_{i,t-1} = \alpha1(1/A_{i,t-1}) + \alpha2[(\Delta REV_{i,t} - \Delta REC_{i,t})/A_{i,t-1} + \alpha3(PPE_{i,t}/A_{i,t-1}) + \varepsilon_{it}$$

Where:

$TA_{i,t}$: is total accruals of firm i in year t (operating cash flow - operating earnings = $TA_{i,t}$)

$\Delta REV_{i,t}$: Change in sale revenues of firm i between year t and t-1.

$\Delta REC_{i,t}$: Change in received accounts of firm i between year t and t-1.

$PPE_{i,t}$: gross property, machinery and equipment of firm i in year t.

$A_{i,t-1}$: Total book value of Company i assets in year t-1.

ε_{it}: unknown effects of random factors.

(EM1): ε_{it} in model (1).

Kasznik model

Kasznik (1999) model, based on the modified Jones model, is presented as follows:

Model (2)

$$ACCR_{it}/A_{i,t-1} = \alpha o/A_{i,t-1} + \alpha1[\Delta REV_{it} - \Delta REC_{it}]/A_{i,t-1} + \alpha2PPE_{it}/A_{i,t-1} + \alpha3\Delta CFO_{it}/A_{i,t-1} + \varepsilon_{it}$$

Where:

$ACCR_{i,t}$: Total accruals.

$\Delta REV_{i,t}$: Income change from year t-1 to year t ($REV_t - REV_{t-1}$).

$\Delta REC_{i,t-1}$: The change in net received corporate accounts relative to the previous period.

$PPE_{i,t}$: Gross property, plant and equipment of firm i in year t.

(EM2): ε_{it} in model (2).

This model differs from the modified Jones model in that it incorporates change in net cash flows derived from operations as the third independent variable. Recent empirical evidence suggests that accruals are negatively correlated with changes in cash flows, which is probably due to the nature of the accounting model (Dechow, 1994). Therefore, the temporary nature of cash flows will have a non-discretionary effect on the total of accruals. Part of this non-discretionary component of accruals can be detected by adjusting total accruals relative to the extent of cash flows derived from operations.

Real Earning Management

In this study, consistent with Roychowdhury's (2006) research, to measure real earnings management, three criteria of abnormal operating cash flow model (3), abnormal production cost (4), and abnormal operating costs (5) were used. They are computed from the residuals derived from the cross-sectional estimation of the following models for each industry over a particular year;

Model (3):

$$CFO_{it}/A_{it-1} = \alpha 0 + \alpha 1 \ (1/\ A_{it-1}) + \beta 1 \ (Sales_{it}/\ A_{it-1}) + \beta 2 \ (\triangle Sales_{it}/\ A_{it-1}) + \varepsilon_{it}$$

Where:

CFO_{it}: Operating cash flow of firm i in year t.

$sales_{it}$: Sales of firm i in year t.

A_{it-1}: Total assets of firm i in year t.

ε_{it}: The residual model component, which indicates the abnormal level of the estimated variable in each model.

(EM3): ε_{it} in model (3).

Model (4):

$$PROD_{it}/A_{it-1} = \alpha 0 + \alpha 1 \ (1/\ A_{it-1}) + \beta 1 \ (Sales_{it}/\ A_{it-1}) + \beta 2 \ (\triangle Sales_{it}/\ A_{it-1}) + \beta 3 \ (\triangle Sales_{it-1}/\ A_{it-1}) + \varepsilon_{it}$$

Where:

$PROD_{it}$: Production costs (total final cost of sold goods, changes in inventory and commodity) of firm i in year t.

(EM4): ε_{it} in model (4).

Model (5):

$$DISEXP_{it}/A_{it-1} = \alpha_0 + \alpha_1 \ (1/\ A_{it-1}) + \beta \ (Sales_{it}/\ A_{it-1}) + \varepsilon_{it}$$

Where:

$DISEXP_{it}$: Operating costs (advertising costs, general and administrative sales distribution) of firm i in year t.

(EM5): ε_{it} in model (5).

Model (6):

To test hypothesis 1, the research model (6) is used.

$$|EM_{it}| = \alpha_0 + \beta_1 RS_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Loss_{it} + \Sigma FixedYear + \Sigma FixedIndustry + \varepsilon_{it}$$

$|EM_{it}|$: Absolute of estimated earnings management for firm i in year t.

RS_{it}: It is equal to 1 if firm i has restatement in t year; otherwise, it is equal 0.

$Size_{it}$: Size of firm i in year t in terms of sales log (or book value of assets) (the one with a higher R^2 value).

Lev_{it}: leverage of firm i in year t.

$Loss_{it}$: Loss of firm i in year t.

FixedYear: Years fixed effects.

FixedIndustry: Industry fixed effects.

Model (7):

To test hypothesis 3, the Model (7) of the research was adopted as follows:

$$EM_{it} = \alpha_0 + \beta_1 RS_{it} + \beta_2 NRS_{it} + \beta_3 RSA_{it} + \beta_4 NRS_{it}*RSA_{it} + \beta_5 Size_{it} + \beta_6 Lev_{it} + \beta_7 Loss_{it} + \Sigma FixedYear + \Sigma FixeddIndustry + \varepsilon_{it}$$

EM_{it} The amount of earnings management calculated for firm i in year t.

RS_{it}: If firm i has a restatement in year t, it is equal to 1; otherwise, it is zero.

NRS_{it}: If firm i has an income-decreasing restatement in year t, it is equal to 1; otherwise, it is zero.

RSA_{it}: Ratio of financial reporting restatements of firm i in year t.

$Size_{it}$ Size of firm i in year t in terms of sales log (or book value of assets) (the one with higher R^2 value).

Lev_{it}: Leverage of firm I in year t.

$Loss_{it}$: Loss of firm i in year t.

$FixedYear$: Years fixed effects.

$FixedIndustry$: Industry fixed effects.

4. Data Analysis and Hypothesis Testing

In this section, research variables are analyzed and hypotheses are tested. To test hypotheses, both regression and t-test have been used. The hypotheses testing was conducted using the earnings management measurement models for the above accruals including the modified Jones model proposed by Dechow et al (1995) as well as Kasznik model (1999), and to measure real earnings management, Roychowdhury model (2006) was adopted. In the present study, Excel and EViews software were used to measure variables and analyze data. In this study, data on 399 firms between 2010 and 2017 used. Our final sample consists of 1328 firm-year observations.

4-1. Descriptive Statistics

The results of the descriptive research statistics are presented in Table (1). In this table, research variables including mean, median, maximum, minimum

and standard deviation are presented. A total of n=339 companies were surveyed over the period of 2010 to 2017 and a total of 1328 observations were useable.

Table (1)

Descriptive statistics of research variables

Continuous research variables					
Variable	**Mean**	**Median**	**Max**	**Min**	**SD**
EM1	0.009	0.002	0.411	-0.323	0.130
EM2	0.010	0.006	0.356	-0.281	0.112
EM3 - CFO	0.021	0.008	0.480	-0.355	0.148
EM4 - *PROD*	-0.025	-0.015	0.417	-0.563	0.165
EM5 - *DISEXP*	0.008	0.003	0.186	-0.104	0.044
RSA	-0.014	0.000	0.193	-0.578	0.087
Size (log base 10)	14.179	13.936	19.020	11.080	1.631
Lev	0.634	0.632	1.653	0.143	0.241
Dummy Research Variables					
Variable		No= 1	No= 0	Ratio	
RS		674	930	0.420	
NRS		112	1492	0.070	
Loss		242	1362	0.151	
Notes: Continuous variables at the 1% level were Winsorized to control the adverse effects of outliers.					

Table (1) displays the results of the statistical description for the dependent, independent and control variables used in this study. The mean, median, maximum, minimum and standard deviation for data derived from the study period (2010 to 2017) are provided. For most variables, mean and median values are close, meaning that the distribution of variables is symmetric. It should be noted that the Average Earnings Management in the modified Jones model is 0.009 with a SD= 0.130, indicating that sample firms on average carry out earnings management for approximately 1% of their total assets. It is while average earnings management with abnormal cash flow is 0.021 with a SD=0.148, meaning that sample firms on average undertake earnings management for 21% of their own assets in cash flows.

Also, the average real earnings management with abnormal cash flow is -0.025, with a SD= 0.148, suggesting that sample firms on average conduct cash management for 21% of their assets in cash flows. However, the real earnings management with abnormal operating expense is 0.008 with a SD=0.044, meaning that sample companies on average dedicate 1% of their assets to earnings management of operating costs. Moreover, the average restatement ratio is -0.014 with a SD=0.087, indicating that sample firms have on average -14% income-decreasing restatement. However, the average ratio

of the dummy variable of restatement is 0.420, indicating that 42% of sample firms have restated their earnings, with 7% of the total sample reporting reducing restatements.

4-2 Hypothesis Test Results

In this section, research variables and hypotheses are tested. Multiple regression and paired t-test were used to test the hypotheses of the present study.

Hypothesis 1 Testing

Through the hypothesis 1, earning management is measured in companies that have restated their financial statements as well as in other companies.

H1: Earnings management in firms with restated financial statements is different from other firms. **Results on test of H1: (absolute value of accruals)**

Table 2a shows the results of first research hypothesis estimation. As can be seen, t-statistic for restatement coefficient has a positive and significant relationship only in the third model (1.887) and its coefficient in other models is not significant at 10% error level. However, t-statistic of the firm size variable has a positive and significant relationship in the third and fourth models (3.177 and 4.841, respectively). As far as the t-statistic is concerned, the coefficient of financial leverage variable has positive and significant relationships in the third model (6.844), and t-statistic in the fourth and fifth models has a negative but significant relationship (7.191 and -2.871, respectively). It is while the t-statistic of loss coefficient in the first and second models has a positive and significant relationship (2.401 and 3.243, respectively).

Table (2) a

Results of the first research hypothesis estimation (absolute value of accruals)

Variable	EM1	EM2	EM3	EM4	EM5
y-intercept	0.150*** 5.255	0.126*** 5.117	0.074*** 2.276	0.016 0.487	0.038*** 3.965
RS.	-0.001 -0.217	-0.003 -0.777	0.011* 1.887	0.001 0.146	0.000 0.121
Size	-0.001 -0.307	0.000 -0.038	0.007*** 3.177	0.011*** 4.841	-0.001 -1.590
Lev	0.001 0.108	0.003 0.255	-0.103*** -6.844	-0.116*** -7.191	-0.013*** -2.871
Loss	0.019*** 2.401	0.021*** 3.243	0.009 1.064	0.000 0.049	0.000 -0.148
Fixed year	Controlled				
Fixed industry	Controlled				
Effect of the end of fiscal year	Controlled				
The effect of	Controlled				

consolidated financial statements					
Adjusted R^2	0.087	0.106	0.126	0.180	0.128
F Statistics	6.731***	8.174***	9.678***	14.282***	9.848***
No of observations	1328	1328	1328	1328	1328

*, ** and *** represent 10%, 5% and 1% levels of significance, respectively.

Table 2-A reveals that the restatement of financial statements only has a significant and positive effect on real earnings management based on Roychowdhury model through abnormal operating cash flow (Model 3); otherwise, it does not have any significant effect on other types of earnings management. Further, the F statistic of model (6) for testing the relationship between earning management in companies that have restated their financial statements as well as in other companies is equal to 6.731, 8.174, 9.678, 14.282 and 9.848 , respectively, with the level of significance of less than 0.01, so model (6), which is regression for the first hypothesis testing is accepted. This means that there is a significant relationship between independent variables and the dependent variable.

Results of test of H1: (accruals)

For further assurance, the first hypothesis is re-tested again without the absolute value of accruals. Table 2b reveals the results of the first research hypothesis estimation. As can be seen, t-statistic of the restatement coefficient has a positive and significant relationship only in the second (2.285) and fifth (1.647) models and its coefficient is not significant at 10% error level in other models. The t-statistic of the firm size variable in the first to third model has a positive and significant relationship (1.920, 2.580 and 4.388, respectively), but the t-statistic of this variable in the fourth model has a negative and significant relationship (-2.987). The t statistic of the financial leverage variable in the first to third model has a negative and significant relationship (-3.443, -4.549 and -8.499, respectively), and the t-statistic of this variable in the fourth model has a positive and significant relationship (10.270). However, the t-statistic of loss variable coefficient in the first and second models displays a negative and significant (-7.407 and -7.908, respectively) and t-statistic of this variable in the fifth model shows a positive and significant relationship (1.664).

Table (2)b

Results on test of H1 (accruals)

Variable	EM1	EM2	EM3	EM4	EM5
y-intercept	0.007 0.168	-0.004 -0.097	-0.050 -1.017	-0.059 -1.136	0.008 0.505
RES	0.011 1.478	0.014*** 2.285	0.000 0.035	-0.007 -0.835	0.004* 1.647

Size	0.005* 1.920	0.006*** 2.580	0.015*** 4.388	-0.011*** -2.987	-0.001 -1.392
Lev	-0.063*** -3.443	-0.072*** -4.549	-0.193*** -8.499	0.259*** 10.270	-0.003 -0.450
Loss	-0.085*** -7.407	-0.075*** -7.908	0.007 0.566	0.016 1.248	0.006* 1.664
Fixed year	Controlled				
Fixed industry	Controlled				
Effects of the end of fiscal year	Controlled				
The effect of consolidated financial statements	Controlled				
Adjusted R^2	0.096	0.135	0.095	0.166	0.058
F Statistics	7.427***	10.452***	7.364***	13.008***	4.705***
No. of observations	1328	1328	1328	1328	1328

*, ** and *** represent 10%, 5% and 1% levels, respectively.

Table 2-B shows that the re-statement of financial statements has a significant and positive impact on the earnings management of accruals under the Kasznik model (second model) and the real earnings management has a significant and positive effect under Roychowdhury model through abnormal operating costs (the Fifth model); otherwise, it does not have any significant effect on other types of earnings management. Further, the F statistic of model (6) for testing the relationship between earning management in companies that have restated their financial statements as well as in other companies is equal to 7.427, 10.452, 7.364, 13.008 and 4.705, respectively, with the level of significance of less than 0.01, so model (6), which is regression for the first hypothesis testing is accepted. This means that there is a significant relationship between independent variables and the dependent variable.

A summary of the results of the first hypothesis testing based on the size and absolute value of earnings management in each of the five earnings management models is given in Table 2c.

Table (2) c

Summarized results of the first hypothesis research

	Accruals	EM1	EM2	EM3	EM4	EM5
RES	EM	0.011 1.478	0.014*** 2.285	0.000 0.035	-0.007 -0.835	0.004* 1.647
	IEMI	-0.001 -0.217	-0.003 -0.777	0.011* 1.887	0.001 0.146	0.000 0.121

*, ** and *** represent 10%, 5% and 1% levels, respectively.

As depicted in the table above, in the test mode of the earnings management relative values, there is a significant relationship between

restatement and earnings management of accruals (the Kasznik model) and real earnings management through abnormal operating costs.In addition, in the absolute value of earnings management, there is a significant relationship between restatement and real earnings management through abnormal cash flows.

Results on Test of H2

Through the hypothesis 2, it is compared to earning management in the year of restatement with the earning management in the year preceding.

H2: Earnings management in the restatement period is lower than its previous period

For the second hypothesis testing, i.e. a significant difference between the restatement and its previous period, the pairwise comparison test was used. If the test indicates a difference between the restatement and the previous period, it could be concluded that earnings management has influenced the data. The results of the second hypothesis test are as follows.

Table (3)

Comparison of the results of average earnings management in restatement years

Variable	Mean of the restatement year	Mean of the year before restatement	Mean difference	t-statistics difference	Significance
EM1	0.011	0.013	-0.001	-0.085	0.933
EM2	0.018	0.004	0.014	1.442	0.151
EM3	0.022	0.018	0.005	0.409	0.683
EM4	-0.017	-0.018	0.000	0.022	0.983
EM5	0.010	0.004	0.007	3.552	0.000
|EM1|	0.102	0.096	0.006	0.622	0.535
|EM2|	0.090	0.083	0.006	0.829	0.408
|EM3|	0.107	0.104	0.003	0.374	0.709
|EM4|	0.121	0.115	0.006	0.620	0.536
|EM5|	0.029	0.029	0.000	0.067	0.947

Table 3 presents the results of the paired t-test for investigating the difference between earnings management in the restatement period and its previous year. The significance level for t-statistic is greater than 10%, so the test results of this hypothesis exhibit that the difference between earnings management in the restatement period and its previous year in the fifth model (Roychowdhury model) based on the abnormal operating cost criteria is 3.552 with respect to the relative amount of earnings management test and its t-statistic. Hence, this hypothesis is confirmed under these conditions. Thus, there is a significant difference between the relative value of earnings management in the restatement period and its previous year. Therefore, the second hypothesis of the research is approved.

Results of Test of H3

Through the hypothesis 3, measures the effect of the amount resulting from the restatement on the earning management.

H3: The greater is the amount of income-decreasing restatement, the lower is the amount of earnings management.

Table 4a illustrates the results of the third research hypothesis estimation. As can be seen, t-statistic of the interaction effect coefficient in the first and second models has a negative and significant relationship (-2.111 and -2.798, respectively), but the coefficient of this variable is not significant in other models at 10% error level. However, t-statistic of the restatement variable reveals only a positive and significant relationship with the third model (2.510). In terms of the t-statistic, the coefficient of income-decreasing restatement variable is only negatively significant in the third mode (-42.430.) The t-statistic of firm size variable in the third and fourth models displays a positive and significant relationship (3.166 and 4.780, respectively). In terms of t-statistic, the coefficient of financial leverage variable in the third to fifth models has a negative significant relationship (-6.881, -7.174 and -2.912, respectively). However, the t-statistic of the loss coefficient variable in the first to third models exhibit a positive and significant relationship (2.472, 3.133 and 2.052, respectively).

Table (4) a

Results of the third research hypothesis estimation (absolute value of accruals)

Variable	EM1	EM2	EM3	EM4	EM5
y-intercept	0.152*** 5.278	0.128*** 5.176	0.071*** 2.187	0.017 0.501	0.038*** 3.881
RES	0.001 0.161	-0.002 -0.380	0.016*** 2.510	0.004 0.546	0.000 0.190
NRS	-0.016 -1.494	-0.014 -1.615	-0.028*** -2.430	-0.010 -0.766	-0.003 -0.841
RSA	0.024 0.961	0.024 1.158	0.028 0.645	0.043 1.179	-0.008 -0.819
NRS*RSA	-0.122*** -2.111	-0.135*** -2.798	-0.053 -0.881	-0.034 -0.513	-0.009 -0.504
Size	-0.001 -0.402	0.000 -0.164	0.007*** 3.166	0.011*** 4.780	-0.001 -1.566
Lev	0.000 -0.033	0.001 0.068	-0.103*** -6.881	-0.116*** -7.174	-0.013*** -2.912
Loss	0.023*** 2.472	0.024*** 3.133	0.020*** 2.052	0.004 0.421	0.001 0.268
Fixed year	Controlled				
Fixed industry	Controlled				
End of fiscal year effects	Controlled				
Consolidated statements effects	Controlled				
Adjusted R^2	0.086	0.073	0.097	0.103	0.029
F Statistic	0.000***	0.000***	0.000***	0.000***	0.000***
No. of observations	1328	1328	1328	1328	1328

*, ** and *** represent 10%, 5% and 1% levels, respectively.

Table 4a shows that the interaction effect only exerts a significant and negative effect on the earnings management of accruals according to the modified Jones and the Kasznik models (first and second models); otherwise, it does not have a significant effect on other types of earnings management. Further, the F statistic of model (7) for testing the relationship between the restatement and earning management, all of them are equal to 0.000, with the level of significance of less than 0.01, so model (7), which is

regression for the first hypothesis testing is accepted. This means that there is a significant relationship between independent variables and the dependent variable.

Results on Test of H3 (accruals)

For further assurance, the third hypothesis is re-tested without absolute value of accruals, Table 4b shows the results of the second model estimation. As can be seen, t-statistic of the interactive effect coefficient has only a positive and significant relationship with the second model (1.922) and the coefficient of this variable is not significant at 10% error level in other variables. However, t statistic of restatement coefficient variable in the first and second models has a positive and significant relationship (2.041 and 2.754, respectively).

In terms of t statistics, the coefficient of income-decreasing restatement variable is not significant at any of 10% error level in any of research models. The t-statistic of firm size variable in the first to third model shows a positive and significant relationship (2.006, 2.677 and 4.394, respectively), and the t-statistic of this variable in the fourth model is negative and significant (-2.968). With regard to the t-statistic, the coefficient of financial leverage variable in the fourth model has a positive and significant relationship (10.561) and t-statistic of this variable in the first to third model has a negative and significant relationship (- 3.281 and - 4.405 and -8.590, respectively). However, the t-statistic of loss coefficient variable in the first and second models exhibit a negative and significant relationship (-5.348 and -5.920, respectively).

Table (4) b

Results on Test of H3 (accruals)

Variable	EM1	EM2	EM3	EM4	EM5
y-intercept	0.000 -0.001	-0.010 -0.268	-0.050 -1.023	-0.058 -1.117	0.008 0.526
RES	0.017 2.041***	0.019 2.754***	-0.002 -0.222	-0.008 -0.855	0.003 1.113
NRS	-0.021 -1.359	-0.014 -1.034	-0.010 -0.534	0.025 1.274	0.003 0.497
RSA	0.023 0.550	0.020 0.607	-0.076 -1.322	0.043 0.868	-0.012 -0.839
NRS*RSA	0.113 1.485	0.125 1.922*	-0.111 -1.420	0.140 1.352	-0.007 -0.268
Size	0.006 2.006***	0.006 2.677***	0.015 4.394***	-0.011 -2.968***	-0.001 -1.389
Lev	-0.061 -3.281***	-0.069 -4.405***	-0.196 -8.590***	0.261 10.561***	-0.003 -0.497
Loss	-0.072 -5.348***	-0.065 -5.920***	0.008 0.493	0.010 0.607	0.004 1.056
Fixed year					Controlled
Fixed industry					Controlled
End of fiscal year effects					Controlled
Consolidated financial statements effects					Controlled
Adjusted R^2	0.129	0.107	0.144	0.150	0.042
F Statistic	0.000***	0.000***	0.000***	0.000***	0.000***
No. of observations	1328	1328	1328	1328	1328

*, ** and *** represent 10%, 5% and 1% levels, respectively.

Table 4-B shows that the interaction effect has only a significant and negative effect on the earnings management of accruals according to the modified Jones model (the first model); otherwise, it does not have any significant effects on other types of earnings management. Further, the F statistic of model (7) for testing the relationship between the amount resulting from the restatement and earning management, all of them are equal to 0.000, with the level of significance of less than 0.01, so model (7), which is regression for the first hypothesis testing is accepted. This means that there is a significant relationship between independent variables and the dependent variable.

A summary of the results of the third research hypothesis based on the relative and absolute value of earnings management in each of the five earnings management models is outlined in Table 4c.

Table (4) c

Summarized results of the third hypothesis research

	Accruals	EM1	EM2	EM3	EM4	EM5
NRS*RSA	EM	0.113 1.485	0.125* 1.922	-0.111 -1.420	0.140 1.352	-0.007 -0.268
	IEMI	-0.122*** -2.111	-0.135*** -2.798	-0.053 -0.881	-0.034 -0.513	-0.009 -0.504

*, ** and *** represent 10%, 5% and 1% levels, respectively.

As can be seen above, in Table 4c, in the test mode of relative value of earnings management, there is a significant relationship between the income-decreasing earnings and the earnings management of accruals (based on the Kasznik model). In addition, in the test mode of the absolute value of earnings management, there is a significant relationship between the income-decreasing earnings and the earnings management of the accruals based on the models proposed by Kasznik and Dechow et al.

5. Conclusion

In this study we examine relationship between financial restatement and earnings management, the confidence of our results at the level of above 90% exhibit that in listed companies in the Tehran Stock Exchange (TSE). We find that there is a significant relationship between restatement and accruals earnings management and real earnings management through abnormal operating costs in the test mode of the relative value of earnings management. In addition, in the test mode of the absolute value of earnings management, there is a significant relationship between restatement and earnings management of accruals through abnormal cash flows.

While, the results of the second hypothesis testing suggest that there is a significant difference between earnings management in the restatement period and earnings management in the pre-restatement period in terms of relative extent of real earnings management (abnormal operating costs).

However, there is no significant difference in the absolute value of earnings management.

The results of the third hypothesis test reveal that there is a positive significant relationship between the income-decreasing restatement and the relative value of accruals earnings management and there is a negative and significant relationship between the absolute value of earnings management and the income-decreasing restatement.

There is no scientific study without of the determinants that may affect the accuracy of the findings of the researcher, such as being determinants outside the control of the researcher, such as the economic situation of the country or political conditions, the period of study and the size of the research sample has a significant impact. Therefore, the results of this study cannot be Generalization to another economic environment because of the different economic and political conditions from one country to another. The profit management models used in this research may also have an impact on the results. The earning management models used in this research may also have an impact on the results.

Investors and auditors, as well as tax authority officials, benefit from research findings that indicate a positive relationship between earning management and restatements. Since there is possible to be a restatement that indicates that there is a manipulation of earning by management, which investors and others should scrutinize and take care before making important decisions when they notice that a company has restatements.

Through our findings in this study, there is possible to be a restatement that indicates that there is a manipulation of earning by management, which investors and others should scrutinize and take care before making important decisions when they notice that a company has restatements.

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