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RELATIONSHIP BETWEEN EARNINGS MANAGEMENT AND FINANCIAL RATIOS AT THE FAMILY FIRMS LISTED IN THE TEHRAN STOCK EXCHANGE

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ABSTRACT

Calculating the earnings of a business firm is affected by accounting methods of estimation and preparation of financial statements is the responsibility of the business entity's management and maybe due to various reasons, the management is to manage interest. The aim of this study is to investigate the relationship between earnings management behavior and financial ratios in family firms listed in the Tehran Stock Exchange. In other words, this study seeks to create a way to predict the relationship between the earnings management and financial ratios at family firms. Statistical Population consists of family firms listed in the Tehran Stock Exchange during the period 2007 -13 and statistical sample has been selected among them. Companies that twenty percent of their shareholders are family members and in addition to this, family members have membership of the board of the company have been considered as a family business. Research hypotheses have been tested by using panel data and Pearson correlation coefficient. The results indicate a significant relationship between liquidity ratios, profitability, leverage, activity and equity and earnings management. But as regards the effect of earnings management on the financial ratios of family firms by using panel data regression we can observe that only benefit the earnings management has a significant effect only on liquidity, profitability and leverage.

Keywords: *Family Business, Tehran Stock Exchange and Earnings Management*

INTRODUCTION

Clarification of the problem and a clear expression of this subject is an important step to conduct a successful step because if the research subject is defined clearly and understandably, continuing of other steps of the research will be difficult and probably will not meet the expectations of the researcher appropriately. To invest in a company, profitability is one of the important features that should be considered, because the company's overall revenue does not represent the earnings. And only after deduction of costs we can say our opinion about earnings. Profitability ratios for the evaluation of the potential profitability of the company and also understanding the benefits are used in associated with other important information.

The findings of past researches shows that the managers of the companies that undergoes major changes in financial leverage in order to comply with the terms of the financing agreements, show the favorable situation of the company, reduce the risk of investing in the company and thus reduce the received credit interest rates, possibly manage the earnings. In other words, the increase in debt (increased financial leverage) increases the company's ability to manage earnings because the managers of these companies have more incentives to satisfy creditors through earnings management. Moreover, requesting the annual audit report to be done by the audit companies that are among conditions of some major suppliers of financial resources, Makes managers face a major limitations and prohibitions regarding earnings management, so the companies that undergo major changes in financial leverage, earnings management occurs less. (Jones)

Earnings as the end result of the accounting process depend on the accounting practices that management selects, therefore, the choice of accounting procedures allows management to make decisions about knowing and measurement of costs and revenues, and it may lead to earnings management.

In fact, earnings management occurs when managers use their own judgment in their external financial reporting and Finally, do some changes in the structure of transactions so that these changes in financial

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reporting may mislead users of the financial information on the basis of economic performance and the profitability trend of the business enterprise as well as the results of contracts based on accounting numbers reported... As well as the affect the results of contracts reported based on accounting figures have been reported (Naseri, 2010)

Earnings management is defined as the process of taking conscious steps within generally accepted accounting principles for taking the reported earnings to the considered level.

Earnings management carries out in three ways:

- Through Structuring of specific transactions (revenue and / or cost)
- Through a change in accounting practices
- Through managing accruals

This study seeks to create a way to predict earnings management relation with financial ratios. Therefore, we try to select the most reliable model among the existing models. Thus, the study's target is priority of calculating the earnings using financial ratios.

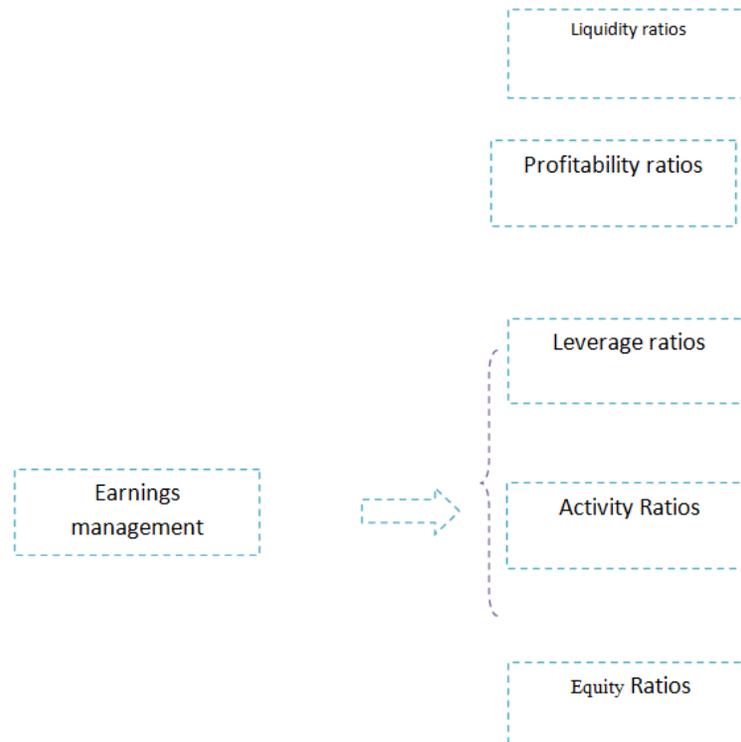
In this study, we seek to achieve the following objectives:

- 1- The relationship between the liquidity rats and earnings management at family firms.
- 2- The relationship between Profitability ratios and earnings management at family firms
- 3- The relationship between Leverage ratios and earnings management at family firms
- 4- The relationship between activity ratio and earnings management at family firms
- 5- The relationship between earnings management and equity ratio at family business

Five hypotheses were defined in order to examine the study that we mention them below:

- 1- There is a significant relationship between Liquidity ratios and earnings management at family firms.
- 2- There is a significant relationship between Profitability and earnings management at family firms.
- 3- There is a significant relationship between Leverage ratio and earnings management at family firms.
- 4- There is a significant relationship between activity ratios and earnings management at family firms
- 5- There is a significant relationship between equity ratios and earnings management at family firms.

The conceptual model is presented below:



Picture 1: Conceptual model

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Konan (2006) and his colleagues by conducting a research examined the accruals related to future stock returns and concluded that Companies with high accruals, in the next period of reporting financial information experienced reduced stock returns. One interpretation of this result is that companies with low earnings quality (i.e. companies with high accruals) in the period after reporting profits, experience loss of return because investors understand the lower quality of companies' earnings and therefore, adjust stock prices accordingly. Konan Chan and colleagues dealt with this issue by separating the components of accruals and classifying on the basis of voluntary and involuntary figures and found similar results (Khajavi and Nazemi, 2005).

Ming (2007) found out that 10 large audit firms in China lead to increasingly reduced earnings management and he also learnt that working with smaller audit firms (compared to the past) may be a sign of low quality earnings (Ibrahimi and Sayyedi, 2008).

Branda and Estraline (2008) by an article entitled "earnings management and audit quality in Europe: Evidence from private sector market" examined the relationship between audit quality and earnings management in European; In this study, considering the 4 major audit firms as high quality auditors and examining earnings management in the audited companies by those firms and comparing them to the companies audited by firms other than those 4 major firms Results showed that there is a relationship between earnings management and audit quality As well as the high quality of auditing in the countries that have coaxial tax system result in constraint (decrease) for earnings management (Branda and Estraline, 2008).

A research in America by conducted Ferdinand *et al.*, (2009), entitled the role of auditor tenure and specialty in auditing industry in the quality of earnings .This research shows that shorter tenure is associated with the lower quality of earnings because auditor's knowledge and expertise compared to that of their employers. In this study, this issue is tested that whether the specialty in auditing industry affects the relationship between auditor tenure and earnings quality. The research results show that, when specialty in auditing industry is low, then the relationship between the longer auditor tenure and earnings quality is stronger and vice versa. So we can say that longer auditor tenure has high correlation with earnings quality when specialty in auditing industry is low and also when specialty in auditing industry specialization is higher, then the relationship between auditor tenure and earnings quality is weaker (Chambers and Payne, 2008).

Zarif Fard (2012) analyzed the factors related to the assessment of business units earnings management and he designed 33 questions and asked accounting and finance professionals working at stock exchange, investment companies, banks, auditing agencies, universities and companies listed in the stock exchange for their opinions and then he concluded that the Users of financial information are aware of reporting of the related components of earnings n evaluating the behavior of earnings management (Khosh and Ismaili, 2005).

MATERIALS AND METHODS

Research Method

The statistical population consists of family firms listed in the Tehran Stock Exchange, so that 43 companies were selected as the statistical population and among them 31 companies that have the following conditions were chosen as the statistical sample:

- The financial statement of company for during the years 2007 to 2013 should be available
- Their Financial year should end on March 20.
- Change in the fiscal year should not happen In the period of investigation

The Method of research is descriptive and correlational it means that it dealt with the examination of the relationship and correlation between the variables and through the correlation analysis, the relation between earnings management and financial ratios of family firms during 2007-13 were reviewed. The methodology used for this study Ex Post Facto one (with using the past information) and regarding the target it is also an applied one. In order to carry out the investigation the statistical data after being extracted from the financial statements of companies and Rahavarde Novin software transferred to Excel

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spreadsheet and by Using this software, dependent and independent variables were calculated and the final analysis the data by using SPSS and Eviews statistical software was done.

RESULTS AND DISCUSSION

Research Findings

Descriptive Statistics

Before we deal with the test research hypotheses, the variables are summarized and examined in Table 1. This table contains indices used in order to describe the research variables. These indicators include of central indicators, scattering indicators and distribution chart indicators.

Table 1: Descriptive statistics

Descriptive Statistics Variables	Standard deviation	Mean	Maximum	Minimum	The number of observations
Quick Ratio	2.67087	1.0874	32.40	0.00	217
Current ratio	2.67602	1.4596	32.40	0.00	217
Liquidity Ratio	2.52870	0.4430	30.59	0.00	217
The ratio of working capital of net assets to total assets	0.30912	0.0204	4.53	-0.83	217
Gross profit to sales	54.75671	32.2878	495.32	-123.37	217
Net profit to sales	51.54778	29.4334	492.03	-123.37	217
Return on assets ROA	12.20539	9.3522	62.33	-28.85	217
Return on equity ROE	139.86763	30.6130	2829.31	-491.43	217
Debt Ratio	0.25477	0.6601	1.44	0.00	217
Debt ratio to equity	21.92705	1.4978	46.64	-413.68	217
Debt coverage ratio	15.52323	6.1620	164.89	0.00	217
Interest coverage ratio	0.00000	0.0000	0.00	0.00	217
The ratio of working capital to goods	82.72241	-2.8147	315.49	-1754.68	217
The average turnover period of inventory	51.37576	57.2264	315.22	0.00	217
Turnover of inventory	102.75151	114.4529	630.44	0.00	217
Receivable Turnover Ratio	860.85404	277.1422	9204.31	0.00	217
Current Working capital	398.06811	-14.3640	180.12	-8408.42	217
Return on capital	71.53503	31.5821	458.68	-400.26	217
The ratio of debt to equity	29.36669	1.4607	49.41	-573.74	217
The ratio of total debt to assets	0.32048	0.3986	1.33	0.00	217
Earnings management	0.49323	0.4149	1.00	0.00	217

In Table 1 there are mean, standard deviation and the minimum and maximum of Companies. According to this table it can be seen that the liquidity ratios which contains quick, current and liquidity ratios are at the same level However, other ratios do not have smooth levels. Table 1 show that the research variables have what kind of characteristics. The last column of the table indicates that the number of all data for all variables studied is equal to the 564 number-years. It shows the Column of mean of collected variables separately that for example the quick ratio is equal to 1. 0874. The second column shows the standard deviation that the variance of return on annual equity is equal to (2. 67,087).The fourth and fifth columns

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show the minimum and maximum amounts of data that the among the research variables of the period receivable ratio equaling (9204. 31) has the highest amount.

According to variables data we check out each of the variables in each year.

Table 2: The average of indices during 2007-13

Variable year	2007	2008	2009	2010	2011	2012	2013
x1	1/1049	1/09523	1/0969	1/0184	1/ 185	1/ 187	1/191
x2	1/480	1/4648	1/ 4722	1/ 5539	1/ 5541	1/ 5545	1/5563
x3	0/ 4501	0/ 44667	0/45648	0/ 5857	0/5861	0/ 5890	0/5684
x4	0/ 022	0/ 01904	0/ 02083	0/ 0256	0/ 025	0/ 023	0/026
x5	32/ 289	32/ 3019	32/ 364	36/ 447	36/ 459	36/ 602	37/401
x6	29/ 403	29/ 434	29/ 5032	33/ 2465	33/ 257	33/ 301	34/918
x7	9/3224	9/ 4359	9/ 4365	11/ 6456	11/65	12/ 18	12/72
x8	30/ 818	30/ 911	30/ 876	29/ 0904	29/ 085	29 /0909	29/0924
x9	0/ 6679	0/6666	0/ 66563	0/ 6241	0/ 6240	0/ 6230	0/6315
x10	1/5190	1/5141	1/ 51105	1/ 87144	1/ 872	1/1809	1/1720
x11	33/ 20	33/ 336	33/ 467	37/ 5856	37/ 593	37/406	37/513
x12	6/ 803	7/ 1971	7/1864	7/ 5275	7/529	7/ 593	7/638
x14	-3/472	-3/46024	-3/ 4401	-5/019	-5/024	-5/ 026	-5/011
x15	57/ 154	57/ 3544	57/2325	60/ 277	60/ 28	60/200	60/024
x16	154/ 8	154/567	154/ 57	150/ 951	150/2	150/16	150/34
x17	294/ 59	291/ 552	292/ 085	302/ 054	302/07	302/03	302/012
x18	-14/ 5	-14/ 5326	-14/505	-20/ 698	-20/71	-20/63	-21/06
x19	48/ 40	48/6700	48/6781	49/696	49/ 702	49/ 895	49/925
x20	1/ 480	1/4777	1/ 47509	2/ 33298	2/ 335	2/ 362	2/718
x21	0/ 400	0/ 39868	0/ 39855	0/ 37561	0/375	0/372	0/369
MI	0/ 4163	0/ 41358	0/4149	0/ 44016	0/ 440	0/ 441	0/ 4432

As it can be seen in Table 2, the averages of above indices have ascending trend during 2010-13 that these changes create a tangible connection with the average of earnings management during these two years. In the following table according we deal with the means according to the average of earnings management.

Table 3: The average of ratios and earnings management

Year Variable	2007	2008	2009	2010	2011	2012	2013
Liquidity ratios	0.764	0.756	0.759	0.8375	0.831	0.836	0.916
Profitability ratios	25.4	25.52	25.54	27.60	27.61	27.63	27.58
Leverage ratios	10.54	10.67	10.69	11.90	11.90	11.91	11.85
Activity Ratios	97.70	97.09	97.18	97.51	97.51	97.52	97.91
equity ratios	16.76	16.8	16.84	17.46	17.47	17.49	17.63
Earnings management	0.4161	0.4137	0.4149	0.4401	0.4402	0.4418	0.4432

According to Table 3 it can be seen that during the years of 2008-10 activity ratios were on decreasing trend that this fact does not apply to other ratios of this matter. As it can be seen during the years of 2009-10 a tangible ascending trend continued and from 2010 to 2013 this trend remained stable and earnings management took a similar trend.

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Kolmogorov - Smirnov Test

In order to test the normality of variables Kolmogorov - Smirnov test has been used and its results are as follows:

Table 4: Kolmogorov – Smirnov table

Variable	Statistic	Significance Level
Quick Ratio	7.557	0.116
Current ratio	6.800	0.081
Liquidity Ratio	9.332	0.226
The ratio of working capital of net assets to total assets	3.032	0.0715
Gross profit to sales	3.983	0.0738
Net profit to sales	4.115	0.894
Return on assets ROA	2.708	0.0538
Return on equity ROE	7.517	0.104
Debt Ratio	1.130	0.062
Debt ratio to equity	9.0196	0.183
Debt coverage ratio	0.971	0.052
Interest coverage ratio	7.495	0.169
The ratio of working capital to goods	9.529	0.173
The average turnover period of inventory	2.876	0.080
Turnover of inventory	2.876	0.092
Receivable Turnover Ratio	8.103	0.152
Current Working capital	9.898	0.189
Return on capital	5.758	0.142
The ratio of debt to equity	9.257	0.191
The ratio of total debt to assets	3.358	0.087
Earnings management	8.346	0.113

Based on the output of above table (P- value<0.05), therefore the hypothesis indicating data normality is accepted as a result, data are normal. So, in order to review the hypotheses we use parametric tests.

Checking First Hypothesis

The first sub-hypothesis is as follows:

H0: there is no significant relationship between earnings management and liquidity ratios at family firms.

H1: there is a significant relationship between earnings management and liquidity ratios at family firms.

In order to examine the relationship between financial ratios and earnings management Pearson correlation test is used and the test results are summarized in the table below:

Table 5: The testing of the first hypothesis

Liquidity management Variables	ratios-earnings	Correlation coefficient	Significance level
Quick management	ratio- earnings	0.094	0.045
Current management	ratio-earnings	0.089	0.059
Liquidity management	ratio-earnings	0.206	0.000
The ratio of working capital of net assets to total assets- earnings management		0.059	0.236

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According to Table 5, it can be seen that the significant levels of quick ratio and liquidity ratio are less than 5%; H0 hypothesis is rejected as a result H1 hypothesis is accepted and, therefore, there is a significant relation between the quick ratio and liquidity ratio and earnings management but the current there is no significant relation between current ratio and the ratio of working capital of net assets to total assets- earnings management.

The Second Hypothesis

The second Sub-hypothesis is as the following:

H0: there is no significant relationship between earnings management and profitability ratios at family firms.

H1: there is a significant relationship between earnings management and profitability ratios at family firms.

The summarized table of Pearson test for the second hypothesis is as following:

Table 6: The testing of the second hypothesis

Profitability ratios-earnings management Variables	Correlation coefficient	Significance level
Gross profit to sales-earnings management	0.219	0.000
Net profit to sales- earnings management	0.193	0.000
Return on assets ROA- earnings management	0.161	0.000
Return on equity ROE- earnings management	0.216	0.000

According to Table 6, it can be seen that at the significance level of 5% all the profitability indicators have significant relationships with earnings management, so H0 is rejected and H1 is accepted and this indicates that the more gross profit to sales and net profit to sales and return on equity, the more the probability of earnings management is.

Checking the Second Hypothesis

The third Sub-hypothesis is as the following:

H0: there is no significant relationship between earnings management and leverage ratios at family firms.

H1: there is a significant relationship between earnings management and leverage ratios at family firms.

The summarized table of Pearson test for the third hypothesis is as following:

Table 7: The third hypothesis testing

Leverage ratios-earnings management Variables	Correlation coefficient	Significance level
Debt Ratio-earnings management	0.153	0.001
Debt ratio to equity-earnings management	-0.131	0.006
Equity ratio	-0.119	0.007
Debt coverage ratio-earnings management	0.142	0.03
Interest coverage ratio-earnings management	0.051	0.399

According to Table 7, it can be seen that at the significance level of 5% only the indicator of Interest coverage ratio has no significant relation with earnings management but other indicators have significant,

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Moreover, the indicators of debt ratio to equity and equity ratio have an inverse and significant relation with earnings management, so H0 is rejected and H1 is accepted and this indicates that the hypothesis is accepted.

Checking the Fourth Hypothesis

The fourth Sub-hypothesis is as the following:

H0: there is no significant relationship between earnings management and activity ratios at family firms.

H1: there is a significant relationship between earnings management and activity ratios at family firms.

The summarized table of Pearson test for the fourth hypothesis is as following:

Table 8: The fourth hypothesis testing

Activity ratios-earnings management Variables	Correlation coefficient	Significance level
The ratio of working capital to goods-earnings management	0.719	0.018
The average turnover period of inventory-earnings management	0.191	0.065
The average Turnover of inventory-earnings management	0.188	0.063
Receivable Turnover Ratio-earnings management	0.402	0.036
Current Working capital-earnings management	0.453	0.030

According to Table 8, it can be seen that at the significance level of 5% only the indicators of The average turnover period of inventory and turnover of inventory have no significant relations with earnings management but other indicators have significant, so H0 is rejected and H1 is accepted that indicates there is a relation between activity ratios and earning management.

Checking the Fifth Hypothesis

The fifth Sub-hypothesis is as the following:

H0: there is no significant relationship between earnings management and equity ratios at family firms.

H1: there is a significant relationship between earnings management and equity ratios at family firms.

The summarized table of Pearson test for the fifth hypothesis is as following:

Table 9: The fourth hypothesis testing

Equity ratios-earnings management Variables	Correlation coefficient	Significance level
Return on capital-earnings management	0.811	0.010
The ratio of debt to equity-earnings management	-0.119	0.018
The ratio of total debt to assets-earnings management	-0.125	0.013

According to Table 9, it can be seen the significance level of all indicators of equity ratio is less than 5%. So H0 is rejected and H1 is accepted that indicates there is a relation between equity ratios and earning management.

Homogeneity of the variances: Due to the significance level (0.69) results indicate that the null hypothesis indicating there is homogeneity of the variances will is accepted. It means that the model does not have the problem of heterogeneity of variance.

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Residuals Independence: Due to the number of 2.036 which is in the range of 1.5 and 2.5 we could say that the problem of auto-correlation does not exist and we can apply regression.

Table 11: Chow test for determining using integrated panel method

Test type	Test statistic	Test statistic value	P-value
Chow test	F	5.2246140	0.0000
Hausman test			

Due to F calculated through Chow test being greater than the critical F therefore H0 has been rejected. Since it was found that we can use panel data now we should test to see which panel should be used. In order to test the using of panel method with fixed effects and random effects panel we will use Hausman test. Based on the above table it becomes clear that due to the level of significance being less than 5% by panels fixed effects should be used.

In order to evaluate the range of independent variables effects on the dependent variable Eviews regression panel data over the period 2007 to 2013 has been used.

Table 12: Panel data regression

Independent variable	The dependent variable of earnings management (MI)		t	R-squared	Adjusted Rsquared
	β	Sig			
C	0.363189	0.0000	8.601395	0.043698	0.035659
Liquidity ratio	-0.0435541	0.0389	-2.068524		
Profitability ratio	0.042861	0.0002	3.790585		
Activity ratio	2/ 01E-04	0.87241	0.217631		
equity ratio	-0.3001241	0.85194	-0.175632		

Based on the output of above table that the significance level is (P- value<0.05) the regression model may be presented like this:

$$MI = 0.363189B_0 - 0.043541B_1 + 0.042861B_2 + 0.012447B_3 + e_0$$

Conclusion

This study has examined all the family firms listed in the Tehran Stock Exchange that over a period of 7 years from 2007 years to 2013 presented consecutive financial statements in order to determine the financial ratios are related to the earnings management of firms or not. Therefore, the earnings management of sample firms companies was calculated and its relationship with the financial ratios was tested. The results after testing research hypotheses are as follows:

A) In the first sub-hypothesis given that the level of test significance is less than $\alpha = 0.05$, so Thus, H1 hypothesis indicating there is a relationship between quick and liquidity ratios and earnings management has been confirmed. As a result, the research first sub- hypothesis is accepted. So at confidence interval of 95% it can be claimed that that there is a significant relationship between the liquidity ratios of earnings management. Moreover, between current ratio, the ratio of working capital of net assets to total assets and earning management no significant relation observed.

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The result of this hypothesis can be interpreted in this way that with having correlation between the variables, with an increase in quick ratio and liquidity ratio companies have conducted earnings management.

B) In the second sub-hypothesis given that the level of test significance is less than $\alpha= 0.05$, so Thus, H1 hypothesis indicating there is a relationship between profitability ratios and earnings management has been confirmed. As a result, the research second sub- hypothesis is accepted. So at confidence interval of 95% it can be claimed that that there is a significant relationship between profitability ratios and earnings management. Moreover this hypothesis can be interpreted in this way that managers in order to increase the profitability ratios of the companies have conducted earnings management through increasing the rate of return on assets and equity.

C) In the third sub-hypothesis given that the level of test significance is less than $\alpha= 0.05$, so Thus, H1 hypothesis indicating there is a relationship between leverage ratios and earnings management has been confirmed. As a result, the research third sub- hypothesis is accepted. So at significance level of 5% it can be claimed that only Interest coverage ratio has no significant relation with earnings management but other ratios have and Debt ratio to equity and equity ratio have significant and inverse relations with earnings management. This matter shows that with having decrease in equity ratio, earnings management increases.

D) In the fourth sub-hypothesis we dealt with the relation between earnings management and activity ratios and according to hypotheses testing we could claim that at the significance level of 5% between the indices of the average turnover period of inventory and turnover inventory and earnings management there is no significant relation. So H0 is rejected and H1 indicating the relationship between activity ratios and earnings management has been confirmed. The result of this hypothesis can be interpreted in this way that with having correlation between the variables, with an increase in activity ratio companies have conducted earnings management.

E) In the fifth sub-hypothesis given that the level of test significance is less than $\alpha= 0.05$, so Thus, H1 hypothesis indicating there is a relationship between equity ratios and earnings management has been confirmed, so the fifth sub-hypothesis has been confirmed.

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