

Investigating the earnings quality characteristic and earnings management type in bankrupt and distressed companies (case study: companies listed on Tehran Stock Exchange)

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Received: 10th Jan 2017, Accepted: 23rd 2017, Published: 15th March 2017

Abstract

This study was conducted to investigate the earnings management type and earnings quality status in bankrupt and distressed companies to compare the results with healthy companies. The method of study is applied in terms of objective and correlational in terms of nature. In this regard, all manufacturing companies listed in Tehran stock exchange were considered as population of study, which 114 of them were selected as sample of study using screening method from 2011 to 2014. Required data were collected through referring to stock exchange information, Kodal site information and using NovinRahavard and Tadbir software, and they were analyzed using E-Views software. Thus, to obtain the quality of accruals for both bankrupt and distressed companies and healthy companies, standard deviation of estimated wastes was calculated based on the first model. Finally, after estimating the quality of accruals and variables of accounting at the company level, the hypothesis of study was tested using the model (2) for each of the bankrupt and distressed, and healthy companies. The results showed that discretionary accruals, non-discretionary accruals, portfolio rank, and accruals quality have a significant relationship with future earnings in healthy companies, while operating cash flow does not have a significant relationship with future earnings. In bankrupt and distressed companies, the findings suggest a significant correlation only between portfolio rank and future earnings, while the relationship of other variables with dependent variable was not significant. In addition, regarding type of earnings management and considering the coefficient of discretionary accruals that was positive (2.09 E-7) in healthy companies and non-significant in bankrupt and distressed companies, it could be stated that earnings management type in both groups was opportunistic. \bar{R}^2 Value for healthy companies was obtained 0.41. It means that over 40% of changes in future earnings of healthy group companies can be justified by independent variables. \bar{R}^2 Value for bankrupt and distressed companies was obtained 0.66. It means that 66% of changes in future earnings of healthy group

Companies can be justified by independent variables.

Key Words: *Earnings management, Earnings quality, Accruals quality, Operating cash flow*

Introduction

Users always require accurate and reliable information for making decision and performing their analyses in their economic affairs, and naturally, lack of appropriate and relevant information can disturb their decision. The financial figures and reports are considered an important part of the data and information required in this process. Numerous experimental studies have confirmed that earnings are considered as the main source of information and decision makers rely more on earnings than any other criteria (Saghafi and Sadid, 2007). However, it should be noted that earnings, as the most important source of information, might not reflect the actual performance and management of companies, since due to inherent flexibility of accounting standards, the interpretation, and application of accounting methods in many cases subject to judgment of managers (Khoshniat and Esmaeili, 2006). Earnings management is a condition in which the managers of the business units report earnings according to their willingness not according to economic content of business unit activities. According to Scott (2003), earnings management could be defined as choosing the accounting procedures by manager. In his view, the aim of manager is to achieve certain objectives such as increased rewards, reduced debt, reduced tax, and reduced political costs, and so on (Banimahd et al., 2014). In another definition, earnings management is defined as a state in which managers use judgment in financial reports and manipulate structure of transactions to change financial reports in order to mislead some stakeholders on economic performance of company or to affect the results of contract depending on accounting figures (Healy and Wahlen, 1999). Earnings management can be divided into three groups: white earnings management, black earnings management, and colorless earnings management. White earnings management involves using flexibility in the selecting the method of accounting for the transfer of confidential information on future cash flows,

improving the transparency of reports. Black earnings management involves fraud, deception, misrepresentation of financial reports, which reduces transparency of reports. Colorless earnings management means manipulation of financial reports within specific standards that include opportunistic and efficient earnings management (Sajjadi et al., 2012). Accordingly, if managers use their authorities to disseminate confidential information on profitability of company leading to increased value of company, earnings management would be efficient. However, if managers use their authorities to increase personal benefits, the management would be opportunistic (Kurdistani and Tatli, 2014). According to Kang and Kim (2011) view, earnings management affects company productivity and it might destroy the wealth of company stakeholders, since when managers are misled from accepted financial reporting practices to achieve their interests, organizational legitimacy is weakened (Jones, 2011). In recent years, companies have shown greater tendency to apply management measures to cover their poor financial condition. As managers have much motivation for manipulating information in the financial statements, they will find many ways even within the framework of the accounting standard to apply earnings management. Accordingly, discovery of applied earnings management will be difficult in many cases (HassasYeganeh and Yazdani, 2007), especially in bankrupt companies (Li et al, 2013). Research conducted on earnings management of the bankrupt and distressed companies at the global level is very limited and the results of these studies are inconsistent with each other. Significant research has not been conducted in Iran in this regard. However, some foreign researchers found that managers of bankrupt and distressed companies have higher motivation for earnings management (JabbarzadehKangarlouii et al, 2009; Dastgir, 2012; Kordestani and Tatli, 2014). Despite earnings management phenomenon that was spread everywhere during the years, it has been less protested and confronted. In this regard, a concept known as "quality of earnings" has been emerged. Then, it was used by financial information users for better understanding of company status and adopting financial decisions (Ahmadpour et al., 2013). Earnings management has many shared aspects with earnings quality in evaluating the financial health of company (Li et al, 2011) so that higher earnings management involves lower earnings quality (Etamadi et al 2012). Considering earnings quality, several studies have been conducted in Iran and each of them has examined certain dimensions, but different dimensions have not been studied. In line with the importance of this issue, this study examines the quality of earnings characteristics and earnings management type in financially bankrupt and distressed companies among manufacturing

companies listed on the Tehran stock exchange. It aims to find answer for the question if quality of earnings characteristic such as quality of accruals has impact on earnings management type of healthy and bankrupt, and distressed manufacturing companies during 2011 to 2014.

Review of literature

In a study entitled "Effect of earnings management on earnings quality in companies with financial crisis", Poorhashem et al (2013) examined companies with the financial crisis and its impact on the earnings quality of these companies compared to other companies during 2004 to 2009. They used data of 32 companies with financial crisis and 82 other companies. The criterion to identify the companies with financial crisis was Article 141 of Commercial Code. Research findings showed that companies with financial crisis have managed the earnings higher compared to other companies by manipulation of accruals practices and manipulation of real activities under Article 141 of Commercial Code. Manipulation of accruals was measured using Kasznic discretionary accruals model (1999) and manipulation of real activities was measured using Roychowdhury unusual cash flows (2006). In the next stage, the effect of earnings quality on earnings management was evaluated using conditional conservatism criterion. To measure conditional conservatism, Ball and Shivakumar (2005) model was used. Conditional conservatism test showed that, unlike expectations, both groups use conservative accounting methods. Therefore, despite higher application of earnings management in companies with the financial crisis, earnings quality measured by conditional conservatism had no significant difference in both groups.

In a study titled "Quality of earnings and financial situation of companies", Kurdistani and Tatli (2014) examined earnings quality and compared companies at three levels of distress, bankruptcy and financial health. Classification of financial condition of companies was done according to Altman adjusted model and earnings quality was measured using four characteristics of earnings quality including the quality of accruals, earnings stability, predictability, and uniformity of earnings. The temporal domain of study was 2006 to 2010 and the research samples were selected to be 110 companies with 1330 observations, and they were assigned to three bankrupt, distressed, and healthy companies. To investigate the mean difference of three groups, of non-parametric method of analysis of variance was used. Research findings show that there is a significant difference between mean of two characteristics of earnings stability and earnings uniformity among three groups, but significant difference was not found between mean of accruals quality and earnings predictability in three groups. In addition, bankrupt companies have lowest

earnings quality level and healthy companies have the highest level of earnings quality. Distressed and bankrupt companies have manipulated their earnings higher compared to healthy companies.

In a study titled "earnings management and earnings quality relationship with the bankruptcy level", Ahmadpur and Shahsavari (2015) evaluated the relationship between earnings management and earnings quality in bankrupt and non-bankrupt companies listed in Tehran Stock Exchange between 2006 and 2010. Earnings quality was measured using four characteristics based on accounting data, including accruals quality, stability, predictability, and uniformity (separately). In addition, by testing the relationship between discretionary accruals as index to measure earnings management and future profitability, efficiency or opportunistic type of earnings management was examined. In addition, future profitability was measured using each of three variables of changes in net earnings, operating cash flow, and net earnings free from future discretionary accruals. Results of estimate model using Panel Data Technique for company subject to bankruptcy threshold and 198 non-bankrupt companies suggest that earnings management in bankrupt companies is opportunistic and it is efficient for non-bankrupt companies.

In a study entitled "earnings management and the distress level of Chinese companies", Lee et al (2013) examined the relationship between earnings quality and level of distress in Chinese companies listed on Shenzhen and Shanghai Stock Exchange during 2003 to 2007. They classified companies financially into distressed and bankrupt, distressed and non-bankrupt, non-distressed and non-bankrupt companies. Then, they measured earnings quality by using four characteristics of accruals quality, stability of earnings, earnings predictability, and earnings uniformity. Findings suggest that earnings quality level has correlation with distress level of company so that the distressed and bankrupt companies had the lowest earnings quality, and distressed and non-bankrupt company had the lower earnings quality than bankrupt companies. In addition, healthy companies (non-bankrupt and non-distressed) had the highest earnings quality in terms of four measurement criteria. Additionally, the findings showed that the quality earnings during the period of study reduced and the number of distressed and bankrupt companies with the lowest earnings quality increased, and the number of healthy companies (non-distressed and non-bankrupt) with the highest quality of earnings reduced during financial years 2003 to 2007.

In a research entitled "international financial reporting standards and the earnings management in Latin America", Rathkeh et al (1997) examined and analyzed the earnings management levels in Latin America after passing international financial

reporting standards. They analyzed Latin American countries of Brazil and Chile firstly. Then, they compared these countries with the Anglo-Saxon countries (UK and Australia) and European countries (France and Germany). The results show that Latin America companies provided higher level of earnings management compared to European and the Anglo-Saxon companies. This opportunity behavior was considerable when only international companies of United States were analyzed. Therefore, even with a unique set of high quality accounting standards and strong reporting motivations, specific characteristics of countries still play an important role in using International Financial Reporting Standards.

In a study titled "The quality of internal control information disclosure, representation cost and earnings management based on experimental data from 2011 to 2013", Ying (2016) examined the relationship between the quality of disclosure of internal control information, representation cost and earnings management. In this regard, companies listed on the Shenzhen Stock Exchange operating during the years 2011 to 2013 were selected as sample of study. Findings of analysis indicated that the internal control information disclosure can affect earnings management through representation cost and improving the internal control information disclosure can reduce representation cost and earnings management.

Methodology

This research is applied in terms of objective and descriptive-correlational in terms of method of study. In addition, it can be said that the research is quasi-experimental and retrospective that was conducted by using past information. The statistical population of research is companies listed in Tehran stock exchange and sample of study included manufacturing companies listed in Tehran stock exchange. According to Altman adjusted model, they were divided into distressed and bankrupt, and healthy groups. In addition, to increase the similarity of sample of study with population and to increase the accuracy of sampling to estimate population parameters and making population characteristics involved in the sample, the following conditions were considered in selecting the sample of study:

- Companies that were listed in stock exchange before 2011 and active in stock exchange since end of 2014
- Their required data are fully available.
- Companies of bankrupt group should be in the bankruptcy range of Altman adjusted model and they should be covered by Article 141 of the Commercial Code, and 2 to 4 variables of Altman model should be negative for them.

-Distressed group companies should be in the financial distress range of Altman adjusted model and they should be covered by Article 141of the Commercial Code, and 1 to 3 variables of Altman model should be negative for them.

- Companies of healthy group should be in the financial health range of Altman adjusted model and they should be covered by Article 141 of the Commercial Code, and all variables of Altman model should be positive for them.

Accordingly, 114 manufacturing companies were selected as sample. Data were through companies listed on the Tehran Stock Exchange by referring to their financial statements, explanatory notes, stock exchange data, Kedal site information and using RahavardNovin and Tadbir software.

According to Altman adjusted model, data were divided into two groups. Then, they were analyzed the data using E-views and regression test. Summary of Altman adjusted model, variables, and their ranges are as follows:

$$\text{Adjusted-Z'-score} = 0.291Y_1 + 2.458Y_2 - 0.301Y_3 - 0.079Y_4 - 0.05Y_5$$

Y₁: Working capital to total assets

Y₂: Cumulative earnings (loss) to total assets

Y₃: Earnings before interest and taxes (operating earnings and loss) to total assets

Y₄: Return on equity to total liabilities

Y₅: Net sales to total assets

Table 1- Altman adjusted model ranges

financial health range	financial distress range	bankruptcy range
Z'-score ≥ 0/3	- 0/14 < Z'-score <0/3	Z'-score ≤ - 0/14

Accordingly, 114 manufacturing companies were selected as sample and they were divided into two groups According to Altman adjusted model. Table 2 shows the number of companies and Altman index value. As shown, out of the 114 companies, 70 companies were financially distressed and bankrupt, and 44 companies were financially healthy.

Table 2- Separation of companies based on Altman index

Altman index	<0.3		≥0.3		Altman index	<0.3		≥0.3	
	number of company	z value	number of company	z value		row	number of company	z value	number of company
1	2	0.16	1	0.51	36	55	0.11	98	0.68
2	3	0.06	7	0.99	37	56	0.27	99	1.37
3	4	0.10	11	0.76	38	58	0.25	102	1.49
4	5	0.06	14	1.68	39	60	0.27	104	5.38
5	6	0.03	15	1.80	40	61	0.21	106	0.49
6	8	0.07	21	0.31	41	62	0.00	107	0.45
7	9	0.23	22	0.75	42	63	0.00	110	0.51
8	10	0.28	24	1.31	43	65	0.22	111	0.30
9	12	0.19	27	0.70	44	67	0.20	113	0.39
10	13	0.11	30	0.90	45	69	0.11		
11	16	0.06	31	0.47	46	70	0.28		
12	17	0.18	32	0.35	47	72	0.09		
13	18	0.13	35	0.49	48	73	0.19		
14	19	0.06	38	0.41	49	74	0.01		
15	20	0.06	44	0.46	50	75	0.02		
16	23	0.24	47	7.49	51	76	0.05		
17	25	0.25	48	7.02	52	77	0.20		
18	26	0.13	49	4.11	53	78	0.18		
19	28	0.15	50	4.97	54	80	0.04		
20	29	0.14	57	0.35	55	84	0.14		
21	33	0.04	59	0.63	56	86	0.15		
22	34	0.17	64	0.54	57	87	0.22		
23	36	0.02	66	0.45	58	89	0.16		
24	37	0.22	68	0.38	59	92	0.10		
25	39	0.28	71	1.23	60	93	0.18		
26	40	0.25	79	0.74	61	94	0.04		
27	41	0.17	81	3.75	62	95	0.21		
28	42	0.25	82	0.96	63	100	0.06		
29	16	0.19	83	0.55	64	101	0.11		
30	17	0.20	85	0.32	65	103	0.12		
31	18	0.12	88	0.46	66	105	0.29		
32	19	0.21	91	0.48	67	108	0.22		
33	20	0.02	96	0.50	68	109	0.18		
34	23	0.11	97	0.46	69	112	0.06		
35	25	0.05	90	1.62	70	114	0.19		

- Calculation of accruals quality

The accruals quality refers to size of accruals that is related to realization of cash flow. In other words, accruals quality explains the liquidity of earnings accruals (Kurdistani and Tatli, 2014). Accruals quality is calculated based on Dechow and Dichow model (2002).

$$TCA_{j,t} = b_0 + b_1 CFO_{j,t-1} + b_2 CFO_{j,t} + b_3 CFO_{j,t+1} + \epsilon_{j,t}(\text{Model 1})$$

CFO_{j,t}: The company j operating cash flow in year t

Operating cash flows were adjusted as follows:

Operating cash flow according to cash flow statement + dividends paid + the cash flow related to investment returns and interest payments for financing - cash flow related to taxes

Therefore, accruals quality is obtained from standard deviation of estimated wastes of the first model.

The first model is obtained as follows: estimate of

$$\text{Accruals Quality } j, t = \sigma (\hat{\epsilon}^j, t)$$

Its low (high) value indicates low (high) quality of accruals.

- Calculation of earnings management

Earnings management through discretionary accruals has been measured as a representative for earnings management. To measure discretionary accruals, Jones model adjusted by Dechow, Sloan, and Sweeney (1995) was used:

$$TA_{j,t} / A_{j,t-1} = \alpha_1 (1 / A_{j,t-1}) + \alpha_2 (\Delta REV_{j,t} - \Delta REC_{j,t} / A_{j,t-1}) + \alpha_3 (PPE_{j,t} / A_{j,t-1}) + \epsilon_{j,t} (\text{Model2})$$

TA_{j,t} is total accruals calculated as follows:

$$TCA_{j,t} = (\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + DEP_{j,t} - \Delta SDT_{j,t})$$

After estimating parameters $\alpha_3, \alpha_2, \alpha_1$ to determine non-discretionary and discretionary accruals, the following equations were used.

$$NDA_{j,t} = \alpha_1 (1 / A_{j,t-1}) + \alpha_2 (\Delta REV_{j,t} - \Delta REC_{j,t} / A_{j,t-1}) + \alpha_3 (PPE_{j,t} / A_{j,t-1})$$

$$DA_{j,t} = TA_{j,t} / A_{j,t-1} - NDA_{j,t}$$

In which:

TA_{j,t} = Total accruals company j in year t

ΔCA_{j,t} = the current assets changes of company j in year t compared to year 1-t

ΔCL_{j,t} = Change in the current liability of the company j in year t compared to the year 1-t

ΔCash_{j,t} = Change in Cash of company j in year t compared to the year 1-t

A_{j,t-1} = the total assets of the company j in the first course

ΔREC_{j,t} = Changes in receivable accounts and documents+ other receivable accounts of company j in year t compared to before

ΔREV_{j,t} = Changes in revenue of company j compared to the year 1-t

PPE_{j,t} = Gross property, plant, and equipment of company j in year t

NDA_{j,t} = Non-discretionary accruals of company j in year t

DA_{j,t} = Discretionary accruals of company j in year t

ΔSDT_{j,t} = Change in current portion of receivable facilities of company j in the current year compared to previous year

DEP_{j,t} = Depreciation cost of company j in year t

Research hypothesis

By controlling accruals quality, the earnings management type in bankrupt and distressed companies is opportunistic, while it is efficient for healthy companies.

Research findings

In this study, collected data were presented in the form of descriptive and inferential statistics. In the descriptive statistics, mean and SD were used, and regression test (to examine the equations of model and testing the research hypothesis) unit root test (to ensure stability of data and avoid spurious regression), and Limer test (to examine the presence or absence of a separate intercept) were used in inferential statistics part.

Table 3- descriptive statistics of research variables

Variable	Group	Mean	SD	Variable	Group	Mean	SD
Quality of accruals (TCA)	Healthy	94213.14	394712.6	Future earnings	Healthy	0.48	0.10
	Distressed	811646	1136015		Distressed	0.04	0.19
operation sh flow before course (CFOP)	Healthy	0.14	0.20	Discretionary accruals	Healthy	99013.14	314712
	Distressed	0.12	0.12		Distressed	800046	1136
Current operation sh flow (CFOC)	Healthy	0.14	0.15	Non-discretionary accruals	Healthy	366968	1389369
	Distressed	0.12	0.12		Distressed	209904.6	887843.5
company future operating sh flow (CFOF)	Healthy	0.14	0.17	Portfolio rank	Healthy	366968	1389369
	Distressed	0.11	0.12		Distressed	0.542	0.49

Descriptive statistics of each of investigated variables in two healthy and distressed groups is shown in Table (3). It is seen that mean of each research variables in the healthy companies group is higher than mean of research variables in financially distressed companies group.

Table 4- The unit root tests LLC (intercept and process)

	Variable	Test statistics	P-Value	Null hypothesis	Te
Financially healthy companies	Quality of accruals (TCA)	-11.64	0.00	Non-durability	Durabl
	Operation cash flow of before course (CFOP)	-7.80	0.00	Non-durability	Durabl
	Current operation cash flow (CFOC)	-5.78	0.00	Non-durability	Durabl
	Company future operating cash flow (CFOF)	-4.38	0.00	Non-durability	Durabl
	Future earnings (XP)	-38.43	0.00	Non-durability	Durabl
	Discretionary accruals	-43.68	0.00	Non-durability	Durabl
	Non-discretionary accruals	-4.65	0.00	Non-durability	Durabl
	Portfolio rank	-4.50	0.00	Non-durability	Durabl
Financially distressed companies	Quality of accruals (TCA)	-31.78	0.00	Non-durability	Durabl
	Operation cash flow of before course (CFOP)	-31.35	0.00	Non-durability	Durabl
	Current operation cash flow (CFOC)	-36.82	0.00	Non-durability	Durabl
	Company future operating cash flow (CFOF)	-30.85	0.00	Non-durability	Durabl
	Future earnings (XP)	-34.06	0.00	Non-durability	Durabl
	Discretionary accruals	-31.78	0.00	Non-durability	Durabl
	Non-discretionary accruals	-8.79	0.00	Non-durability	Durabl
	Portfolio rank	-2.37	0.00	Non-durability	Durabl

One of the ways to avoid spurious regression is to ensure stability of data. Therefore, before model estimation, statistical properties of panel data are investigated in terms of durability or unit root presence. The results of the unit root test for the variable of the model are shown in Table (4), which is observed that all variables, except for non-discretionary accruals, are durable at zero level.

Research hypothesis testing

After estimating accruals quality variable and accounting variables at the company level, the research hypothesis was tested using the following model for each of healthy groups.

$$X_{j,t+1} = b_0 + b_1 DA_{j,t} + b_2 NDA_{j,t} + b_3 CFO_{j,t} + b_4 Rank_{j,t} + e_j \text{ (model 6)}$$

X: Future profitability (change in net earnings one year later)

- DA: Discretionary accruals of company
- NDA: NON-Discretionary accruals of company

- CFO: company operating cash flows
- Rank: Portfolio rank (portfolio rank based on company accruals quality)
- Portfolio upper 40% and lower 40% was ranked respectively with numbers one and zero for each sample. 20% of middle of data was ignored.
- t: studied period (since 2011 to 2014)
- i: companied listed in stock exchange

- Financially healthy company

To determine presence or lack of separate intercept for each of companies, Limer test should be investigated.

Table 5- Output of Fixed Effects-Likelihood Ratio test for healthy companies

Fixed effects test	Critical value	Df	Estimated likelihood
Cross-section F	0.88	43.126	0.67
Cross-section Chi-square	45.98	43	0.34

According to the result of test, at the 95 percent level, it is accepted that each of the selected companies has same intercept. After explaining the model and choosing the best method, the final regressions with same intercepts were estimated for selected companies and results are as follows:

Table (6) the results of model for healthy companies

POOLED			
Variable	Coefficient	Statistic t	Prob
C	0.01-	-1.44	0.15
DA	E-72.09	2.56	0.01
NDA	E-97.6-	-2.07	0.03
CFOC	0.005-	-0.15	0.88
Rank	0.11	9.61	0.00
RES	1.92-	-2.40	0.01
$\bar{R}^2 = 0.41$	$R^2 = 0.42$	$D.W = 2.05$	
F-25.49 statistic=	Prob=0.00		

Source: research findings

As can be seen from the output of estimate, discretionary accruals, non-discretionary accruals, rank of portfolio and accruals quality have a significant relationship with future earnings, while

operating cash flow is not significantly correlated with future earnings.

If the coefficient of discretionary accruals (coefficient DA) in the model is significant and positive, earnings management will be efficient, but if the coefficient of discretionary accruals is less than or equal to zero or slightly positive earnings management will be opportunistic (Kurdistani and Tatli, 2014).

Coefficient of discretionary accruals in the current study is slightly positive (2.09E-7). Therefore, it can be claimed that earnings management is opportunistic in this group of companies.

Numerical value \bar{R}^2 states that which percentage of dependent variable changes is explained by the independent variables. \bar{R}^2 value in the current model is equal to 0.41. It means that more than 40 percent of the company's future earnings are justified by the independent variables. In addition, D-W statistic value is 2.05. Considering the panel data method and short period of years studied (four years), lack of auto-correlation and health of model could be claimed.

After that partial regression coefficients significance was evaluated individually, overall regression significance must be tested. In fact, we should answer the question if return on assets is linearly correlated with 5 explanatory variables. According to the statistics value $F=25.49$ and estimated probability $Prob = 0.00$, it is determined that all slope coefficients are not simultaneously zero and significance of total regression is confirmed.

To clearer explaining of variables coefficients, the variables that their partial regression coefficient is more than 0.05 are eliminated and the model is re-estimated. By eliminating variable of operating cash flow, results are as represented in Table 6:

Table (7)- model results for healthy companies after eliminating dummy variables

POOLED			
Variable	Coefficient	Statistic t	Prob
C	0.01-	-1.83	0.06
DA	E-72.15	2.64	0.00
NDA	E-97.84-	-2.44	0.01
Rank	0.11	9.90	0.00
RES	E-71.98-	-2.40	0.01
$0.41\bar{R}^2 =$	$0.43R^2 =$	$2.05D.W =$	

F-32.11 statistic=	Prob=0.00	
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Source: research findings

Financially distressed company

Results of Limer test for distressed companies are as follows:

Table 8- Output of Fixed Effects-Likelihood Ratio test for distressed companies

Fixed effects test	Critical value	df	Estimated likelihood
Cross-section F	0.95	69.205	0.57
Cross-section Chi-square	78.12	69	0.21

According to the result of test, at the 95 percent level, it is accepted that each of the selected companies has same intercept. After explaining the model and choosing the best method, the final regressions with same intercepts were estimated for selected companies and results are as follows:

Table 9- second model results for distressed companies

POOLED			
Variable	Coefficient	Statistic t	Prob
C	0.01-	-3.49	0.00
DA	E-102.28-	-0.30	0.76
NDA	E-101.89-	-0.21	0.82
CFOC	0.07-	0.22	0.82
Rank	0.13	23.68	0.00
RES	E-102.65	0.22	0.82
$0.66\bar{R}^2 =$	$0.67R^2 =$	$1.81D.W =$	
F-112.12 statistic=	Prob=0.00		

Source: research findings

As can be seen from the output estimate, portfolio rank has a significant relationship with future earnings. However, other variables had no significant relationship with the dependent variable. As mentioned, if the coefficient of discretionary accruals (DA coefficient) is less than or equal to zero, slightly positive, or non-significant, earnings management will be opportunistic (Kurdistani and Tatli, 2014).

As discretionary accruals coefficient has no significant correlation in the current study, it can be claimed that earnings management is opportunistic in financially distressed companies. \bar{R}^2 value in this model is equal to 0.66. It means that more than 66 percent of future earnings changes of companies are justified by the independent variables. In addition, the D-W statistic value is equal to 1.81. Considering

the panel data method and short period of years studied (four years), lack of auto-correlation and health of model could be claimed.

After that partial regression coefficients significance was evaluated individually, overall regression significance must be tested. In fact, we should answer the question if return on assets is linearly correlated with 5 explanatory variables. According to the statistics value $F=112.12$ and estimated probability $Prob = 0.00$, it is determined that all slope coefficients are not simultaneously zero and significance of total regression is confirmed.

To clearer explaining of variables coefficients, the variables that their partial regression coefficient is more than 0.05 are eliminated and the model is re-estimated. By eliminating dummy variables, results are as represented in Table 10:

Table (10) the results for of model for distressed companies after eliminating the dummy variables

POOLED			
Variable	Coefficient	Statistic t	Prob
C	0.02-	-6.51	0.00
Rank	0.13	25.41	0.00
$0.70\bar{R}^2 =$	$0.70R^2 =$	$1.83D.W =$	
F-662.4 statistic= F-662.4	Prob=0.00		

Source: research findings

Analysis of results

According to descriptive statistics, it was revealed that all variables follow normal distribution. In addition, to investigate the durability of variables, unit root test was used. The results showed that all variables of study, except for non-discretionary accruals, are durable at the zero level. Healthy companies, as expected, had higher quality of earnings, operating cash flow, future earnings, discretionary and non-discretionary accruals compared to bankrupt and distressed companies. Then, to obtain the quality of accruals for both distressed and bankrupt companies and healthy companies, standard deviation of estimate wastes was calculated based on the first model. Finally, after estimating the accruals quality and accounting variables at the company level, the hypotheses of the study were tested using the model (6) for each of healthy and distressed, and bankrupt groups. The results showed that discretionary accruals, non-discretionary accruals, portfolio rank, and accruals quality have a significant relationship with future earnings, while operating cash flow does not have a significant relationship with future earnings in

healthy companies. In distressed and bankrupt companies, the findings suggest a significant correlation between portfolio rank and future earnings and the relationship of other variables with dependent variable is not significant.

In addition, if the coefficient of discretionary accruals (DA coefficient) is less than or equal to zero or slightly positive, earnings management will be opportunistic (Kurdistan and Tatli, 2014). As the coefficient of discretionary accruals was slightly positive in healthy companies ($2.09E-7$, and non-significant in bankrupt and distressed companies, it could be stated that earnings management in both groups is opportunistic. \bar{R}^2 value for healthy companies was obtained 0.41. It means that more than 40% of future earnings changes in healthy companies can be explained through independent variables. \bar{R}^2 value for distressed and bankrupt companies was obtained 0.66. It means that more than 66% of future earnings changes in these companies can be explained through independent variables.

As mentioned, by accruals quality controlling as earnings quality characteristic, it is found that management of earnings in both bankrupt and healthy companies is opportunistic. Hence, efficiency of earnings management in healthy companies by controlling the accruals has been rejected. Therefore, research hypothesis for manufacturing companies listed in Tehran stock exchange was not confirmed. Based on these findings, we can conclude that earning management should be emphasized by manufacturing companies listed in Iran stock exchange. This result is in line with previous studies conducted by Poorhashem et al (2013), Dastgir et al (2012), Kurdistani and Tatli (2014), and Moeineddin et al (2015). In addition, results indicated that management of earning in distressed and bankrupt companies is opportunistic. Therefore, this result is consistent with results of studies conducted by Kordestani and Tatli (2014), Dastgir et al (2012), Ahmadpur and Shahsavari (2015) and Li et al (2013). However, it was inconsistent with results of the mentioned studies in terms of efficiency of earnings management in healthy companies, since significant difference was not found between distressed and healthy companies in terms of type of earnings management type.

Recommendations

-As earnings management in the studied companies was opportunistic, it is recommended that financial statements users to pay attention to financial reports quality in these companies for their economic decisions when analyzing operating companies in the stock exchange.

-Additionally, it is recommended for planners of accounting standards and Tehran Stock Exchange to adopt laws and regulations to examine the quality of financial reports of companies operating in the Tehran stock exchange during the past years by using appropriate criterion and to provide the information for users.

- Moreover, according to results of this study and other domestic studies suggesting the phenomenon of earning management in Iranian companies listed in the stock exchange, it is recommended that required cautions and adjustments (reviews) to be considered in using bankruptcy prediction models that are based on accounting figures (especially earnings sum).

References

- 1.Ahmadpor, A, Shahsavari, M, ZareBahnamiri, MJ. (2013). Earnings quality role in predicting future profitability of bankrupt and non-bankrupt companies in Tehran Stock Exchange, Eleventh National Conference on Accounting in Iran, Mashhad, Ferdowsi University of Mashhad.
- 2.Banimahd, B., HassasYeganeh, Y., Yazdanian, N. (2014). Earnings management and auditor's opinion: Evidence from the private sector auditing. *Journal of Management Accounting Research*. 7 (20): 17-32.
- 3.Datgir, M, Hossein Zadeh, AH, Khodadadi, V, Vaez, A. (2012). Earnings quality in distressed companies. *Financial Accounting Research Journal*, 4 (1): 1-16.
- 4.Etemadi, H, Momeni, M, FarajzadehDehkordi, H (2012). Earnings management, how earnings quality affects companies? *Financial Accounting Research Journal*, 4 (2): 101-122.
5. HassasYeganeh, Y., Yazdanian, N. (2007). The impact of corporate governance on reduced earnings management. *Journal of Accounting Research*, 17: 151-172.
6. JabbarzadehKangarluei, S, khodayarYeganeh, S, Pourreza Sultan, A. (2009). Investigating relationship between earnings smoothing and financial distress of companies in the Tehran Stock Exchange, *Quarterly financial accounting*, 1 (2): 60-80.
- 7.Khoshtinat, M., Ismaili, Sh. (2006). The relationship between earnings quality and stock returns. *Journal of Accounting Research*, (12 and 13): 27-56.
- 8.Kordestani, Gh., Tatli, R. (2014). Quality of earnings and financial situation of companies. *Studies Journal of Accounting and Auditing*, 3 (11): 4-19.
- 9.Kordestani, Gh., Tatli, R, Kosarifar, H (2014). Evaluation of predictability of Altman adjusted model from the stage of Newton financial distress and bankruptcy of companies. *Investment knowledge*, 3 (9): 83-99.
- 10.Moeinadin, M., Naebzadeh, Sh., Yavari, E., MirmohammadiSadrabadi, Mu (2015), Relationship between ethics and earnings management behavior and the impact on demographic features on it. *Ethics in Science and Technology*, 10 (2): 120-132.
- 11.Poorhashem, V, Talebnia, G., Javanmard, SA. (2013). Effect of Earnings Management on earnings quality of companies with the financial crisis. *Accounting knowledge*, 4 (13): 75-103.
- 12.Saghafi, A., Sadidi, M. (2007). The effect of accounting conservatism on earnings quality and stock returns. *Empirical studies of Financial Accounting*, 5 (18): 1-24.
- 13.Sajjadinia, SH., Dastgir, M., Hossein Zadeh, AH., Akhgar, MO. (2012). Investigating the methods of using management authorities in future profitability reporting and the effect of ffeatures of companies on ways of using these authorities, *Journal of Accounting*, 3 (8): 7-30.