

# A survey of the relationship between disclosure quality (on time and reliability) and accruals management in the financially distressed companies

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## Abstract

The purpose of this research is the investigation of relationship between disclosure quality and accruals management in the financially distressed companies. To operationalize the disclosure quality, disclosure score presented by stock market was used. Adjusted model of Jones (1991) was applied for separation of discretionary and nondiscretionary accruals. Chari-tou *et al.* model (2004) was used for measurement of bankruptcy risk and determined the financially distressed companies. 249 firms listed in Tehran Stock Exchange were used as sample study for 2003-2009 to test the hypotheses and determining the relation between disclosure quality and accruals management and Panel Data system was used for analysis. The results show that there is a positively significant association between the accruals management (discretionary accruals) and disclosure quality. Also, the relationship between disclosure quality and accruals management in financially distressed companies had significant difference with the relationship with financially non-distressed companies. The results of the study showed that by the increase of bankruptcy risk, the relation between disclosure quality and accruals management is not weak significantly.

**Keywords:** Disclosure Quality, Accruals Management, Bankruptcy Risk, Discretionary accruals

## Introduction

The information is of great importance in economic decisions and the investors without adequate information don't recognize the investment risks well.

To make the information effective on decisions of the users of financial statement, they should be presented at appropriate time to them. As financial information is sensitive to the passage of time and its value is lost in decision making over the time, the closer the presentation of information to the approaching events, the more appropriate the information. In financial reporting, as the time for presenting the report is more close to the date of the end of fiscal year, this issue is more emphasized.

Information timeliness is one of the features of information relevance and it means that financial information is given to the users when they can take decision, judge or take action. In other words, financial information should be presented before the time to take decision and judge for the users is finished. The calculation of net profit of enterprise is affected by accounting methods. Thus, earnings can be manipulated by the management. Accounting earnings is determined by accrual basis. Normally, using accruals basis makes the operating earnings reported different from the net cash flow from operation and the report of a series of accruals in financial statements.

Accounting accruals are divided into discretionary and non-discretionary. The results of some of the researches showed that earnings accruals and its components are effective on stock return of the companies, market value and their capital costs. In order that accounting earnings is useful in decision making of the investors, it should be of high quality. One of the criteria of evaluation of earnings quality is earnings stability.

The main quality features of accounting information are relevance and reliability. The relevant information (with information content) is the one verifying or changing the decisions of the users. Accounting information should have other quality features to be

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useful in accordance with the board of financial accounting standards for decision making. These features are called quality sub-features are including comparability and consistency (Habib Ahsan, 2004).

One of the important criteria being used by various beneficiary groups to estimate profitability power of the company, prediction of future earnings and the related risks and evaluation of management performance, is current and past earnings of the company. Accruals earnings is including cash and accruals.

The transparency and quality of the annual reports of the companies are important in the recent years. The main question is that whether disclosure quality and quality features affect the management of earnings accruals? Is the reporting quality affected in the companies in which accruals are manipulated? Is there any relation between the mentioned variables among the financially distressed companies (high bankruptcy risk) more than other companies. The present study attempted to answer these questions and based on the results of the study presented applied recommendations to the financial statement users and potential and actual investors.

### **The theoretical basics of the study**

Literally, disclosure means the speech or action disclosing something. In other words, disclosure is public distribution of information voluntarily or by observing the legal rules and administrative regulations but the information can be maintained in secret. Some of the researchers considered the disclosure quality contingent upon continuous distribution of information at appropriate time. According to them, in the companies in which the disclosure quality is high, it is not possible to avoid unsuitable but valuable information disclosure (Fakhari and Falah Mohammadi, 2008).

The higher the quality of information disclosure method in the companies, the more effective the decisions of the investors and other users. The disclosure quality is the process of providing the information of business institution in the form of financial statements, reports and annual analyses of management, notes, etc as the stock holders and analysts take good financial decisions based on the information (Jans, Orens and Lybaert, 2006).

Tehran Stock Exchange (TSE) controls financial reporting of the companies listed. There are various criteria affecting the quality of information disclosure annually and evaluate the information reporting and disclosure by the companies and according to these criteria, the mentioned companies are scored and ranked.

### ***The quality features of information (timeliness)***

The goals of financial and accounting basics require that the information provided by financial reporting is enjoying definite features. Although these features are affected by economic, social, political, cultural and legal relations of the society. The information provided should be useful, reliable and correct for the decision making of the users. The important features in accordance with Iran accounting standards are shown in Chart (1-2).

The main quality features of accounting information are relevance and reliability. The relevant information is the one verifying or changing the decisions of the users. Theoretically, the relevant information should have the following three features as timeliness, feedback valued and prediction value.

Timeliness is the important element of relevance and it means that the information should be given to the users during decision making. The information with timeliness feature don't have any effect on the decision of the users and it is not relevant. Also, accounting information should provide the conditions for future events prediction namely cash flows (prediction value) and via the verification or modification of the previous expectations of the decision maker affect a decision (feedback value).

### ***Effective factors on timeliness of reporting***

Timeliness of reporting is based on various factors. These factors are divided into two groups. The first factors are auditing and auditing features and the second type is dedicated to company features and management performance. The factors of audit are important in doing the audit duties and issuing timeliness of auditing (Ansah, S., 2000).

However, specific factors of company and management performance are the ones allowing the management to produce appropriate annual reporting or reduction of the costs with reporting delay. The present study investigated some of the factors dedicated to social-economical conditions of Iran and there are convenient data for them.

Here, the effect of some of the features of company and management on timeliness of financial reporting is explained. These factors include profitability, equity return, stock return, financial risk, company size.

It is expected that profitability affects the behavior of timeliness of reporting. Bagnoli, M, Kros W. Watts S. (2002) believed that the companies with successful results (good News) report financial statements more rapidly than the companies with unsuccessful operation or the companies with

retained loss (bad News). The reason is that profitability measures the efficiency of the operation of company. The performance of a company has an important effect on securities market and on management skills of the company.

For management skills of the company, the market uses company performance to determine the wage of the non-responsible members of management. For example, a company with good News (positive performance) experiences an increase in the stock value of a company and management. But in a company with bad News (negative performance), it is expected that the manager of a successful company presents its News for the public timely.

The management aims to increase the wealth of the common stock holders of the company. The equity return ratio is the best criteria of evaluation of success or failure of the management of the company in achieving the aim. This ratio emphasized that the return of income depends upon the price invested by the stock holders.

Timeliness of dissemination of annual report is dependent upon the company size of the reporter. Big companies mostly have timely reporting. First, they have more resources, more accounting employees and high education level and advanced accounting information systems to report timely. Most of the big companies can install computer sites, purchase computer software by programmers to use the required program and have access to hardware and software features being rapid, correct and precise in processing and controlling inventory. Using these tools leads into the rapid and immediate use of annual timely accounts and reports.

To have strong internal control systems, the big companies found that auditors have limited time in content tests and it causes to minimize audit lag and some of the companies present some of the employees to the auditors and inspectors and this facilitate auditing and the companies will have immediate reporting to people (Dogan, Mustafa, Coskun, Ender and Çelik, Orhan.).

## Review of literature

Dogan, Coskun and Celik (2007) in their study on Turkey companies, evaluated the relation between financial performance of the company and timeliness of financial statements report and found that profitability was effective on reporting time of financial statements. They also found that financial report had significant relation with company size and financial risk.

Bowen *et al* (1992) in their study evaluated the relation between financial reporting lag and effec-

tive market factors and found the financial reporting lag to the previous periods among the studies companies is due to the bad News.

Bagnoli *et al.*, (2002) tested the difference between date of voluntary report of the expected earnings and real report date. The study was conducted on 4434 year-company and showed that real report is after the expected data.

Jans, Orens and Lybaert (2004) in a study evaluated the relation between earnings management, earnings timeliness and the quality of accounting information disclosure and found the increase of earnings management in the companies with high disclosure quality is rarely observed and earnings timeliness is high in the companies with high disclosure quality.

Shaw K.W (2003) conducted a study on the effect of earnings management on the quality of information disclosure. The result of the study showed that earnings management had negatively significant relation with disclosure quality.

Lang and Lundholm (1993) in their study showed that the company size and company performance were associated with disclosure quality. They found that discretionary accruals had significant relation with information asymmetry.

Verdi, R. (2006) in his study evaluated the relation between disclosure quality and effectiveness of investment in the study company and found that disclosure quality leads into more investment in the companies.

Mahdavi and Jamalian pour (2010) in their study evaluated the effective factors on financial reporting speed. The results of their study showed that the companies with different reporting speed had different financial and non-financial ratios. Also, the speed of financial reporting was different in different industries. The speed of financial reporting during the studied years was high. Most of the financial and non-financial ratios had significant relation with the speed of financial reporting. The results of the study showed that by financial and non-financial ratios, significant models to predict the financial reporting speed are achieved.

The research done by Bazazde and Dastgir (2003) regarding "the effect of disclosure and information on capital costs". They evaluated 40 companies listed on TSE for the period 1996-2001. They found that there was a negative relation between disclosure, information and capital costs. It means that the higher the disclosure, the lower the capital costs and vice versa.

## Methodology

The accounting aims were related to the information requirements of the users and the main aim of accounting for financial reporting was defining the financial condition and performance of the business institution for the external organization users to help them in financial decisions and investment. The main instrument of transferring information to the people was basic financial statements including the profit and loss (reported earnings figure). On the other hand, one of the aims of financial statements is reflecting the duty of management accounting to the resources presented to them (Pourheidari, Hemati, 2004).

Earnings are important information about economic decisions. The studies on earnings are one of the major attempts in accounting history. Earnings as the guidance of paying dividend, effective measurement of management and prediction and evaluation of decisions is always considered by the investors, managers and analysts (Noravesh and Qolamzade, 2003). Accounting earnings is calculated by accrual system is considered a tool to evaluate the performance of the companies according to various users of financial statements. The evaluation of the performance of the companies is the total evaluation of the condition and results of enterprises for logical decision making. For example, accounting profit can be used as the basis of providing credit of the banks to the company or the inclusion criteria to be listed in stock market (Zariffard and Nazemi, 2004).

There are different interpretations of earnings between the accountants and financial analysts. Financial analysts generally consider the net earnings reported (accounting earnings) different from real earnings. One of the reasons that analysts consider the reported accounting earnings different from real earnings is the fact that accounting earnings can be manipulated by the managers (Zariffard, 1999).

The quality of the information presented by the companies in the form of financial statements (timeliness and reliability) can have close relation with accounting earnings management (discretionary accruals volume). Due to the difference between economic conditions of financially distressed and non-distressed companies, it is expected that the relation between dis-

closure quality and accounting earnings management in the financially distressed companies has significant difference with the mentioned relation in the financially non-distressed companies. It is expected that when the bankruptcy risk of a company is increased, the company mostly manipulates financial information. This causes that the relation between disclosure quality and accounting earnings management is weak. Based on the items, the following hypotheses are presented:

First hypothesis: There is a significant relation between disclosure quality and accruals management.

Second hypothesis: The relation between disclosure quality and accruals management in the financially distressed companies had significant difference with the same relation in the financially non-distressed companies.

Third hypothesis: The higher the bankruptcy risk, the weaker the relation between disclosure quality and accruals management.

### Population of the study

The study population was all the companies listed on TSE for the period 2003 to the end of 2009 (457 companies, 2334 year-company) to determine the study sample by systematic elimination method, the following conditions were used:

1- At first the companies their fiscal year is not 29 or 30 Esfand were excluded (103 companies, 388 year-company).

2- Then, the banks and financial institutions and financial investment companies (due to the different nature of their activity form other business institutions) were excluded (13 companies, 64 year-company).

3- Finally, the outlying observations (first percentile and percentile 99 of all the observations) were excluded (92 companies, 369 year-company)

By the following conditions, 249 companies (1513 year-company) were selected to estimate the models and hypothesis test.

### Models and operational definition of the variables

After the data collection, at first for dividing accruals into discretionary and non-discretionary (earnings management agent), adjusted Jones model (1991) was used presented by Kothari, Leone and Wasley (2005):

$$ACC_{it} = \alpha_0 + \alpha_1(1/A_{it-1}) + \alpha_2[(\Delta REV_{it} - \Delta REC_{it})/A_{it-1} + \alpha_3(PPE_{it}/A_{it-1})] + \alpha_4ROA_{it} + \varepsilon_t \quad (1)$$

Where, ACC is total accruals and is operating cash flow minus net earnings. Total assets.sale revenue changes, received accounts, PPE fixed assets, ROA return on asset obtained by dividing net earnings by as-

sets of the beginning period. After the estimation of the above model, its residuals equal to discretionary accruals are extracted. To calculate the bankruptcy risk of future year, Charitou *et al.*, (2004) was used.

$$FAILING_{it} = \ln(P/1-P)_{it} = \omega_0 + \omega_1 TLTA_{it} + \omega_2 EBITTL_{it} + \omega_3 CFOTL_{it} + \varepsilon_{it} \quad (2)$$

Where FAILING is binary specification variable with 1 for bankrupt companies and 0 for other companies<sup>1</sup>, P bankruptcy risk (BR) in future, TLTA total liabilities to total assets ratio, EBITTL is operating earnings to total liabilities and CFOTL cash

flow operating to total liabilities. The above model was estimated by logistic method (logit method) and bankruptcy risk is calculated based on it.

To test the first hypothesis, the following model is estimated:

$$DAC_{it} = \lambda_0 + \lambda_1 LDQ_{it} + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 ROA_{it} + \varepsilon_{it} \quad (3)$$

Where DAC is discretionary accruals, LDQ disclosure quality score logarithm, SIZE company size equal to the logarithm of the total assets, MTB market to book value for the company growth. In model (3), three variables of size,

growth and return of assets played the role of control variables. If LDQ is significant, the first hypothesis is not rejected.

To test the second hypothesis, the following model is used:

$$DAC_{it} = \lambda_0 + \lambda_1 LDQ_{it} + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 ROA_{it} + \lambda_5 DUM_{it} + \lambda_6 DUM_{it} * LDQ_{it} + \lambda_7 DUM_{it} * SIZE_{it} + \lambda_8 DUM_{it} * MTB_{it} + \lambda_9 DUM_{it} * ROA_{it} + \varepsilon_{it} \quad (4)$$

Where, DUM is binary specification variable when the company is distressed it is 1, otherwise 0. In model (4), when the coefficient of  $DUM_{it} * LDQ_{it}$  is significant, the second hypothesis is not rejected.

(3.60) and Hausman (17.96) at 1% showed that model (1) should be estimated by fixed effects approach. The results of the estimation of adjusted Jones model with the mentioned approach are shown in Table 1.

To test the hypothesis 3, at first the companies were computed based on bankruptcy risk by model (2) were divided into three classes with low, average and high risk. Then, model (3) was estimated in the levels with low and high bankruptcy risk. Based on the third hypothesis, it can be said that LDQ variable for the companies with high bankruptcy risk is significantly smaller than the mentioned coefficient for the companies with low bankruptcy risk. Thus, the method of Paternoster et.al (1998) is used. In the method, for third hypothesis test, the following statistics was calculated with t-student distribution.

The results of the estimation showed that the coefficient of fixed assets (-0.12) and return on assets (0.34) was significant at 1%. The significance of Fischer statistics (23.40) showed the significance of the estimated model. The adjusted coefficient of determination showed that independent variables of model (1) determined about 18% of dependent variable changes.

After the estimation of model (1), disturbance terms of model were extracted as discretionary accruals.

$$T = (\lambda_1 - \lambda'_1) / \sqrt{(s.e_{\lambda_1})^2 + (s.e_{\lambda'_1})^2} \quad (5)$$

### *Estimation of model (2) and calculation of bankruptcy risk*

In the mentioned model ( $\lambda'_1$ ) $\lambda_1$ , LDQ variable coefficient of model (3) is for the companies with low or high bankruptcy risk.

To calculate bankruptcy risk of the company in future year, model (2) with logistic approach was estimated in Table (2). The results showed that total liabilities to total assets (3.98) ratio, operating earnings to total liabilities (-3.56) and cash flow ratio to total liabilities (-1.70) were significant at 1%. It shows that the liabilities had direct relation with bankruptcy probability and operating earnings and operating cash flow of the company had inverse relation with bankruptcy probability.

In one-way test, if the above statistics is negative and significant, the third hypothesis is not rejected.

The significance of likelihood (428.84) at level 1% showed the total significance of the model. The determination coefficient of *McFadden* showed that the independent variables could predict 27% of the changes of dependent variable.

## **Data analysis**

### *Estimation of model (1) and dividing accruals into discretionary and non-discretionary accruals*

Adjusted model of Jones (2005) was applied for separation of discretionary and nondiscretionary accruals by pooled data. The significance of Limer statistics

To determine the percent of validity of the prediction of the model, the Expectation-Prediction Evaluation for Binary Specification was used. The results of expectation-prediction for model (2)

<sup>1</sup> According to article 141 commerce code, when the retained loss of the company is equal or more than the half of the capital, the company is financially distressed.

showed that the mentioned model predicted bankruptcy with accuracy 38.49%, non-bankruptcy

87.54%. After the estimation of model (2), the bankruptcy probability of each company is extracted.

**Table 1. The results of estimation of model (1)**

$$ACC_{it} = \alpha_0 + \alpha_1(1/A_{it-1}) + \alpha_2[(\Delta REV_{it} - \Delta REG_{it})/A_{it-1}] + \alpha_3(PPE_{it}/A_{it-1}) + \alpha_4 ROA_{it} + \varepsilon_t$$

| Variables                       | Coefficient    | t-student statistics | Significance |
|---------------------------------|----------------|----------------------|--------------|
| Intercept                       | 0.03***        | 3.94                 | 0.00         |
| 1/A                             | -557.85        | -0.84                | 0.40         |
| ( $\Delta REV - \Delta REG$ )/A | -0.01          | -0.81                | 0.42         |
| PPE/A                           | -0.12***       | -6.39                | 0.00         |
| ROA                             | 0.34***        | 12.53                | 0.00         |
| Fischer statistics (sig)        | (0.00)23.40*** |                      |              |
| Adjusted R <sup>2</sup>         | 17.94%         |                      |              |
| F-Limer statistics (sig)        | (0.00)3.60***  |                      |              |

\*\*\*Significance at level 1%

**Table 2. The results of estimation of model (2)**

$$FAILING_{it} = \ln(P/1 - P)_{it} = \omega_0 + \omega_1 TLTA_{it} + \omega_2 EBITTL_{it} + \omega_3 CFOTL_{it} + \varepsilon_{it}$$

| Variables  | Coefficient     | Z statistics | Significance |
|--|-----------------|--------------|--------------|
| Intercept  | -3.69***        | -8.29        | 0.00         |
| TLTA   | 3.98***         | 7.79         | 0.00         |
| EBITTL   | -3.56***        | -5.38        | 0.00         |
| CFOTL  | -1.70***        | -3.27        | 0.00         |
| Likelihood ratio statistics (sig)                      | (0.00)428.84*** |              |              |
| McFaddencoefficient of determination                   | 26.65%          |              |              |
| The percentage of correct prediction of bankruptcy     | 38.49%          |              |              |
| The percentage of correct prediction of non-bankruptcy | 99.32%          |              |              |
| The percentage of correct predicting of the model      | 87.54%          |              |              |

\*\*\*Significance at level 1%

### Descriptive statistics

After the calculation of discretionary accruals and bankruptcy risk of the company, the descriptive statistics indicating the general view of the data distribution are shown in Table 3. The results showed that median of logarithm of bankruptcy score 3.60(3.74), discretionary accruals 0.00(-0.06), company size 13.04(12.93), market to book value 2.47(1.78), return on asset 0.13(10.11), bankruptcy risk 0.19(0.14), total liabilities to total assets 0.71(0.67), operating earnings to total liabilities ratio 0.26(0.18), operating cash flow to total liabilities ratio 0.16(0.10), total accruals 0.04(0.03), sale revenue to assets of the beginning period 0.95(0.87),

received accounts ratio to assets of beginning period 0.24(0.22) and fixed assets to the asset of beginning period 0.32(0.28).

### Definition of the variables

LDQ: Disclosure quality score logarithm

DAC: Discretionary accruals of adjusted Jones Model (2005)

SIZE: Company size equal to the asset natural logarithm.

MTB: Market to book value of the company as the agent of growth of company.

ROA: Return on asset equal to the net earnings to assets of the beginning period.

**Table 3. Descriptive statistics of the variables under study**

| Variable | Mean  | Median | Max   | Min   | SD   |
|----------|-------|--------|-------|-------|------|
| LQD      | 3.60  | 3.74   | 4.57  | 0.00  | 0.70 |
| DAC      | 0.00  | -0.06  | 4.61  | -5.57 | 0.94 |
| SIZE     | 13.04 | 12.93  | 17.11 | 9.78  | 1.33 |
| MTB      | 2.47  | 1.78   | 23.42 | -6.55 | 2.61 |
| ROA      | 0.13  | 10.11  | 0.79  | -0.56 | 0.16 |
| BR       | 0.19  | 0.14   | 1.00  | 0.00  | 0.21 |
| TLTA     | 0.71  | 0.67   | 3.96  | 0.20  | 0.32 |
| EBITTL   | 0.26  | 0.18   | 1.87  | -0.24 | 0.27 |
| CFOTL    | 0.16  | 0.10   | 1.45  | -0.40 | 0.26 |
| ACC/A    | 0.04  | 0.03   | 0.94  | -0.67 | 0.14 |
| REV/A    | 0.95  | 0.87   | 3.34  | 0.05  | 0.51 |
| REC/A    | 0.24  | 0.22   | 1.03  | 0.00  | 0.18 |
| PPE/A    | 0.32  | 0.28   | 1.41  | 0.00  | 0.23 |

BR: Bankruptcy risk of Charitou *et al.* model (2004)

TLTA: Total liabilities to total assets

EBITTL: Operating earnings to total liabilities

CFOTL: Cash flow operation to total liabilities

ACC/A: Total accruals to assets of the beginning period

REV/A sale revenue to assets of the beginning period

REC/A Received accounts to assets of the beginning period

PPE/A: Fixed assets to total assets of beginning period

maximum (Min) variables of bankruptcy score 4.57(0.00), discretionary accruals 4.61(-5.57), company size 17.11(9.78), market to book value ratio 23.42(-6.55), return on assets 0.79(-0.56), bankruptcy risk 1.00(0.00), total liabilities to total assets ratio 3.96(0.20), operating earnings to total liabilities

1.87(-0.24), operating cash flow to total liabilities ratio 1.45(-0.40), total accruals 0.94(-0.67), sale revenue to assets of beginning period 3.34(0.05), received accounts to the assets beginning period 1.03(0.00) and fixed assets to assets of the beginning period 1.41(0.00).

#### *The results of estimation of the study models*

To test the first and second hypotheses, models (3), (4) are estimated. To test hypothesis 3 of model (3) in the levels with high and low bankruptcy risk was estimated and Paternoster *et al.* (1998) test was used.

#### *The results of estimation of model (3)*

The results of model (3) are presented in Table (4). The non-significance of Limer statistics (0.29) showed that model (3) should be estimated by constraint approach.

**Table 4. The results of estimating model (3)**

| Variables                | Coefficient     | t-student statistics | Significance |
|--------------------------|-----------------|----------------------|--------------|
| Intercept                | -0.28**         | -1.99                | 0.05         |
| LDQ                      | 0.04**          | 2.02                 | 0.04         |
| SIZE                     | -0.01           | -0.61                | 0.54         |
| MTB                      | -0.03***        | -10.51               | 0.00         |
| ROA                      | 2.24***         | 18.74                | 0.00         |
| Fischer statistics (sig) | (0.00)116.19*** |                      |              |
| Adjusted R2              | 34.73%          |                      |              |
| F-Limer statistics (sig) | (0.92)0.29      |                      |              |
| Hausman statistics (sig) | -               |                      |              |

\*\* , \*\*\*Significance level at 5%,1%.

The results of estimating the mentioned model with constraint approach showed that disclosure quality score logarithm (0.04) was significant at level 5% and the coefficient of market to book value (-0.03) and return on asset (2.24) at level 1%. The significance of Fischer statistics (116.19) at level 1% showed the significance of the model and adjusted R<sup>2</sup> showed that independent variables determined about 35% of the changes of dependent variable. The significance of disclosure quality score loga-

rithm showed that there is a significant relation between earnings management (discretionary accruals) and disclosure quality. Thus, first hypothesis is not rejected.

#### *The results of estimating model (4)*

The results of estimation of model (4) are shown in Table (6). The non-significance of Limer statistics (0.29) showed that model 4 should be estimated by constraint approach.

**Table 5. The results of estimating model (4)**

$$DAC_{it} = \lambda_0 + \lambda_1 LDQ_{it} + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 ROA_{it} + \lambda_5 DUM_{it} + \lambda_6 DUM_{it} * LDQ_{it} + \lambda_7 DUM_{it} * SIZE_{it} + \lambda_8 DUM_{it} * MTB_{it} + \lambda_9 DUM_{it} * ROA_{it} + \epsilon_{it}$$

| Variables                | Coefficient     | t-student statistics | Significance |
|--------------------------|-----------------|----------------------|--------------|
| Intercept                | 0.07            | 0.78                 | 0.44         |
| LDQ                      | 0.03***         | 2.60                 | 0.01         |
| SIZE                     | -0.02***        | -4.30                | 0.00         |
| MTB                      | -0.04***        | -15.90               | 0.00         |
| ROA                      | 1.69***         | -14.33               | 0.00         |
| DUM                      | -0.88***        | -2.56                | 0.01         |
| DUM*LDQ                  | 0.10*           | 1.90                 | 0.06         |
| DUM*SIZE                 | 0.04*           | 1.81                 | 0.07         |
| DUM*MTB                  | 0.00            | -0.23                | 0.82         |
| DUM*ROA                  | 2.67***         | 7.38                 | 0.00         |
| Fischer statistics (sig) | (0.00)120.53*** |                      |              |
| Adjusted R2              | 55.40%          |                      |              |
| F-Limer statistics (sig) | (0.92)0.29      |                      |              |
| Hausman statistics (sig) | -               |                      |              |

\*, \*\*\*Significance level at 10%,1%.

The results of estimating the mentioned model with constraint approach showed that disclosure quality score logarithm (0.03), company size (-0.02), market to book ratio (-0.04), binary specification DUM (-0.88), DUM\*ROA (2.67) was significant at level 1% and the coefficient of DUM/LQD (0.10) and DUM\*SIZE(0.04) were significant at level 1%. The significance of Fischer statistics (120.53) at level 1% showed the significance of the model and adjusted R<sup>2</sup> showed that independent variables determined about 55% of the changes of dependent variable.

The significance of DUM/LQD showed that there is a significant difference between disclosure quality and accounting earnings management in financially distressed companies with the same relation in the financially non-distressed companies. Thus, first hypothesis is not rejected.

#### **The results of model (3) in the levels with low and high bankruptcy risk**

The results of estimation of model 3 for the companies with low bankruptcy risk are shown in Table 6.

The significance of Limer statistics (2.29) and Hausman (11.09) showed that for the companies with low bankruptcy risk, model (3) is estimated by fixed effects. The results of estimating the model with fixed effects showed that the coefficient of size (-0.11), growth (-0.07) and return on asset of company (3.09) were significant at level 1%. Significance of Fischer statistics (9.66) at level 1% showed the general significance of the model. Adjusted R<sup>2</sup> showed that independent variables explained about 22% of the changes of dependent variable.



The results of estimation of model (3) for the companies with high bankruptcy are shown in Table 7. The non-significance of Limer statistics

(1.17) showed that model (3) is for the companies with high bankruptcy risk estimated by constraint approach.

**Table 6. The results of estimation of model 3 for the companies with low bankruptcy risk**

$$DAC_{it} = \lambda_0 + \lambda_1 LDQ_{it} + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 ROA_{it} + \epsilon_{it}$$

| Variables                | Coefficient   | t-student statistics | Significance |
|--------------------------|---------------|----------------------|--------------|
| Intercept                | 0.68          | 1.36                 | 0.18         |
| LDQ                      | 0.07          | 0.97                 | 0.33         |
| SIZE                     | -0.11***      | -3.47                | 0.00         |
| MTB                      | -0.07***      | -3.93                | 0.00         |
| ROA                      | 3.09***       | 8.68                 | 0.00         |
| Fischer statistics (sig) | (0.00)9.66*** |                      |              |
| Adjusted R2              | 22.08%        |                      |              |
| F-Limer statistics (sig) | (0.05)2.29    |                      |              |
| Hausman statistics (sig) | (0.03)11.09** |                      |              |

\*\* , \*\*\*Significance level at 5%,1%.

**Table 7. The results of estimation of model (3) in the companies with high bankruptcy risk**

$$DAC_{it} = \lambda_0 + \lambda_1 LDQ_{it} + \lambda_2 SIZE_{it} + \lambda_3 MTB_{it} + \lambda_4 ROA_{it} + \epsilon_{it}$$

| Variables                | Coefficient     | t-student statistics | Significance |
|--------------------------|-----------------|----------------------|--------------|
| Intercept                | -0.61***        | -3.35                | 0.00         |
| LDQ                      | 0.02            | 1.67                 | 0.10         |
| SIZE                     | 0.04***         | 2.45                 | 0.01         |
| MTB                      | -0.04***        | -6.70                | 0.00         |
| ROA                      | 4.71***         | 23.37                | 0.00         |
| Fischer statistics (sig) | (0.00)690.85*** |                      |              |
| Adjusted R <sup>2</sup>  | 90.52%          |                      |              |
| F-Limer statistics (sig) | (0.32)1.17-     |                      |              |
| Hausman statistics (sig) | -               |                      |              |

\*\*\*Significance at level 1%

The results of the estimation of the mentioned model with constrained approach showed that the coefficient of size (0.04), growth (-0.04) and return on asset (4.71) were significant at 1%. The significance of Fischer statistic (690.85) at level 1% showed that the general significance is estimated. The adjusted coefficient of determination showed that independent variables explained about 91% of the changes of dependent variable.

The comparison of disclosure quality score logarithm in the companies with high and low risk showed that the mentioned coefficient for the companies with high bankruptcy risk (0.10) was lower

than the same coefficient for the companies with low bankruptcy risk (0.33). It showed that by the increase of bankruptcy risk, the relation between disclosure quality and management of accounting earnings is weakness. The results of Paternoster et.al (1998) test showed that the statistics (-0.66) was not significant. Thus, disclosure quality score logarithm in the companies with high bankruptcy risk was not significantly smaller than the same coefficient for the companies with low bankruptcy risk. In other words, by the increase of bankruptcy risk, the relation between disclosure quality and accounting

earnings management is not significantly weak. This rejects hypothesis 3.

The present study applied the hypotheses to evaluate the relation between independent and dependent variables.

First hypothesis: There is a significant relation between disclosure quality and accruals management.

Second hypothesis: There is a significant difference between disclosure quality and accruals

management in the financially distressed companies with the same relation in the non-distressed companies.

Third hypothesis: The higher the bankruptcy risk, the weaker the disclosure quality and accruals management.

The results of hypotheses test are interpreted. The results of estimating the model and hypotheses test are shown briefly in Table (8):

**Table 8. The summary of the results of hypotheses test**

| No. | Hypothesis   | The number of observations | Result    |
|-----|--|----------------------------|-----------|
| 1   | There is a significant relation between disclosure quality and accruals management.  | 1743                       | Supported |
| 2   | There is a significant difference between disclosure quality and accruals management in the financially distressed companies with the same relation in the non-distressed companies. | 1743                       | Supported |
| 3   | The higher the bankruptcy risk, the weaker the disclosure quality and accruals management.   | 1743                       | Rejected  |

Source: Research calculations

### *First hypothesis testing*

It was observed that there is a significant relation between disclosure quality and accruals management. Hypothesis 1 with confidence interval 95% is supported. This result is inferred as by the increase of disclosure quality and improving the financial reporting among the companies listed on TSE, more discretionary accruals are observed. The result was not consistent with the results of Jans, Orens and Lybaert (2004). The results of their study showed that there is a negative relation between disclosure quality and accrual earnings management but they are consistent with the results of the study of Shaw K.W (2003).

### *Second hypothesis testing*

It was observed that there is a significant difference between disclosure quality and accruals management in the financially distressed companies with the same relation in the non-distressed companies. Thus, hypothesis 2 is supported. It can be said that the financially distressed companies (according to article 141 commerce code), there is good relation between disclosure quality and accrual earnings management.

### *Third hypothesis testing*

The comparison of disclosure quality variable in the companies with high and low bankruptcy risk showed that the mentioned coefficient for the compa-

nies with high bankruptcy risk was lower than the same coefficient for the companies with low bankruptcy risk and this showed that by the increase of bankruptcy risk, the relation between disclosure quality and accounting earnings management is weakened. But the results of Paternoster et.al (1998) showed that the statistics (-0.66) is not significant. Thus, disclosure quality score logarithm in the companies with high bankruptcy risk was not significantly smaller than the same coefficient for the companies with low bankruptcy risk. In other words, by the increase of bankruptcy risk, the relation between disclosure quality and accounting earnings management is not weakened significantly. This rejects the third hypothesis.

## **Conclusions**

Based on the results of the study, disclosure quality is considered as a preventive factor to earnings accounting manipulation (via accruals). The relation between two factors in distressed and non-distressed is different. In financially distressed companies, market sensitivity and supervision mechanism are high and by increasing the disclosure quality in these companies, manipulation of earnings is weaker. It can be said that distressed companies have financial problem as they are less able in manipulation of earnings.

## Recommendations of the study

The development of any science is based on organized researches done. By the increase of studies field and improvement of the study methods in sciences, it can be said that the science is developed increasingly and more comfort is given to the humanistic communities. In the study, by the reviewing of information resources about the study topic and the results of the present study, some recommendations were considered: First some recommendations about the future studies top and the second some recommendations about formulating the good reporting standards.

## Practical recommendations

### a. Investors

The investors to take investment decisions should consider management performance namely quality characteristics of accounting information and net earnings as timeliness, reliability and relevance and the scores achieved by the company for disclosure quality. Due to the significance of accounting earnings and manipulation of profit and loss, the potential and actual stock holders should consider the earnings quality and accruals presented by management of the company and consider some measurements to increase the earnings quality. Some of the measurements are the accuracy in selecting the board of directors and good managing director and the accuracy in selecting the auditor. The management performance should be reviewed as periodically.

### b. Formulating the accounting standards

This group should define some standards for better control of management behavior of the companies in selecting the various methods of accounting and its optimum evaluation criteria in the companies. Because the managers by having authority in selecting the accounting methods apply more discretionary accruals.

### c. TSE

This organization should supervise financial reporting and its timeliness in the companies listed on TSE. This organization can increase the presence of financial analysts to increase transparency of financial reporting and information disclosure.

## Suggestions for future study

- The review of the relation between other quality characteristics of earnings as timeliness, high quality disclosure among the stock companies.

- The study of the effective factors on disclosure equality and timing the earnings reporting as financial and non-financial variables among the stock companies.

- The study of the relation between relevance of other accounting information and variables as cash flow, book value and comparing them with earnings among the stock companies.

- The study of the disclosure quality on stability of cash and accrual components and their comparison and its effect on earnings information content.

- Conducting the study with the same topic but because of increasing reliability, the period of the study increased.

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