The Investigation of the Effect of Income Smoothing on the Reported Earnings Quality of Active Collapsed Companies in Tehran Stock Exchange (TSE)

Saeid Jabbarzadeh Kangarlouei, Morteza Motavassel, and Abdolhosein Rezvani
Islamic Azad University, Orumieh Branch, Orumieh Iran

Abstract
The aim of this study is to investigate the effect of income smoothing on the quality of reported earnings of the active collapsed companies in TSE. In this paper, 81 active collapsed companies are derived from TSE (subject to Business Law Article 141) during the period of 7 years from 2004 to 2010. To increase the robustness of the results, the quality of earnings through the models of Dechow & Dichev (2002) and Richardson et al. (2004) and income smoothing in the earnings different levels (earnings before tax and interest (EBIT), operating income and net income) by using two methods of real and artificial smoothing are measured. Finally, the hypotheses are examined through the models of ordinary least square (OLS) regression and coefficient of determination in Eviews 6 Software. The results of research hypotheses testing were rejected in both methods and in all earnings levels, unlike most of the results of researches conducted in this regard in other parts of the world. In other words, although the results express a very weak correlation relationship between variables, but proves the concept that the main purpose of the collapsed companies’ managers from manipulation of profit and loss figures is merely to maintain their firms in the capital market and to prevent dropping of the market value of the firm. However, the quality of earnings figures for the collapsed companies' managers has not dominant importance while they are in the critical condition.

Keywords: Real Income Smoothing, Artificial Income Smoothing, Earnings Quality & Collapsed Companies
Paper type: Research paper

Introduction
On the one hand, managers as providers of the financial statements awarding of the financial positions of the company and having privileged information than the financial statements users (Kordestani and Amirbygi, 2008); on the other hand, increasing manager’s information regarding accounting procedure and methods, along with booming in the capital market and also accounting standard and principles flexibility, lead to incentives in managers to show a good picture of the companies’ financial position through a phenomenon so-called earnings management (Javadian kutnaee, 2000). According to Iran conceptual framework, the objective of the financial statements is to report condensed and classified information about financial position, performance and flexibility of an entity, which is useful for wide range of the financial statement users and the economic decisions.
Also, under Iran conceptual framework, information will be useful if have certain characteristics so-called “Qualitative Characteristics of Accounting Information” which is necessary for enhancing the quality of financial reporting and for usefulness in decision-making (Iranian accounting standards setting committee, 2007). In the midst of this, net income is one of important items, which is reported in the financial statements and has various applications in the accounting and financial reporting. Generally, profit is a base for tax calculation, a factor for policy-making about dividend, a leader for investors and decision-making and finally is a factor in forecasting. Calculating company's net income is influenced by the accounting method and estimations. Therefore, there is a possibility of income manipulation by management. The studies have shown that income persistency is an indicator for its quality. However, investors can invest with more confidence in a firm with persistent income trend. Therefore, because profit is one of important criteria in performance evaluation and determination company's value so earnings quality is an important issue for accounting researchers and investment management (Esmaeli, 2007). Studies have been done in worldwide have presented mixed results regarding the effects of income smoothing on the quality of reported earnings. Researchers, in some cases, put emphasis on the negative effects of income smoothing on the quality of reported earnings and, in other cases, on the positive effects of income smoothing on the quality of reported earnings. On the one hand, taking these paradoxes into consideration favoring the effects of income smoothing on the quality of reported earnings, and on the other hand, the existence of the same results regarding relationship between income smoothing and financial collapses of firms listed in TSE, indicate that collapsed firms engage in income smoothing in order to keep themselves in capital market (Jabbarzadeh et al., 2009). In this research, we will try to answer the question that: “Does income smoothing (whether real or artificial) increase the quality of reported earnings or decrease it in active collapsed firms of TSE?

The paper proceeds as follows: The next section summarizes the related literature and describes the potential contribution of our study. After hypotheses development, we describe the data and the methodology. Then we will present statistical models and methods of research hypotheses testing. Finally, after presenting empirical results we will report the main results and conclusions.

**Literature Review**

From informational view, income states the economic activates results. However, as a basic measure of assessment is doubtful. According to efficient market hypothesis (EMH), empirical researches indicate that income has information content (Hagigat and Raygan, 2008). Accrual accounting provides for managers a choice in profit determination in different periods. In fact, under this accounting system, managers have a significant control on recognition of some revenue and expense items (Mashayekhi et al., 2005) which lead to earnings management. Earnings management is defined as intentionally taking steps under generally accepted accounting principles (GAAP) to achieve from the reported earnings to the desired earnings. Converging of the reported earnings to the desired earnings is done through accounting manipulation (Malla-Nazari and Karimi-e-Zand, 2007). Income smoothing has been interesting issue for accounting and financial researchers in the past half century. Many researchers recognize Hepworth (1953) as proposer of income smoothing. Meanwhile, some argue that income history is greater than this and it comes back to early 19th century and even before that. In the west society, researchers of income smoothing phenomenon put an implicit hypothesis based on their study that purports managers have tendency to apply an information system that mitigates the reported earnings variation during of time. They argue that income smoothing as a hypothesis and without theatrical background is always subject of scrutiny. There are so many evidence that company managers engage in income smoothing in different level (Badri, 1999).
As we can get from income smoothing definition to achieve some specific goals that reasonably provide benefits of specific individuals, managers report income in a way that is not accompany with the public user's benefits and makes the financial statements misleading while it is under accounting standards and auditors cannot express an qualified opinion on these financial statements (Stolowy and Bereton, 2004). In this regard, Healy and Wahlen (1999) argue that income smoothing occurs when managers make a personal judgment in financial reporting to manipulate it, which aimed to mislead stockholders about the underlying economic performance of the firm or to influence debt contracts that depend on accounting figures. Nowadays, income is one of the most debatable and interesting issues in the accounting research since investors put lots of emphasis on the profit figure as one of the most important factors in decision-making. Studies suggest that low earnings variation and its persistency indicate the quality of earnings. However, investors can invest with more confidence in the firms with more persistent earning trend. In this regard, income smoothing would be one of the methods of the window dressing of financial position that is done by management interfering in earning determination process (Noravesh et al., 2005). Hence, considering that income is one of the important factors of decision-makings; user's knowledge about reliability of income figure can help them in better decision-makings (Stolowy and Bereton, 2004). Manager's choices in applying matching principle, estimation and forecasts are the factors that influence on reporting quality as a whole and the quality of earnings as a component. On the one hand, because of manager's knowledge about firms affairs it is expected that they provide information in a way that show the firms position in the best position; on the other hand, there is a possibility of showing a good picture of the firms by managers because of keeping their position, getting bonus and so on, through earnings management. Therefore, the quality of firm's earnings, influenced by manager's actions to show a better financial position, deteriorates (Khajave and Nazemi, 2005). For instance, overstated earnings are used as an assessment measure of management performance so result in excess compensation for them. In the same way, overstated earnings hide impending financial collapse of the firms and cause that lenders provide resources improperly (Charitou et al., 2007). On the one side, economic and social expenses of financial collapse are very significant. Lenders, creditors, managers and employees are the important groups influenced from the firm's financial collapse. Previous studies highlight that managers of the collapsed companies may manipulate firms financial information in order to hide or delay the companies' financial collapse (Deangelo et al., 1994). Several studies indicated that managers of the bankrupted firms have more incentives to manage the earnings. For example, to avoid default in the debt contracts and conceal their unfavorable condition, they engage in earnings management. In contrast, some researchers document that when there are more external monitoring regulations or auditor's report about the qualification of the firms going concern, they have incentives to mitigate income and exercise more conservatism (Healy and Wahlen). On the other side, other than conflict between managers and stockholders, in other cases there might be an incentive to screen a bad performance through earnings management (Charitou et al., 2007).

Some researchers (Healy and Jiambalva; Dichev and Skinner; Beneish et al.) investigated accounting choices in the financial reporting of the collapsed firms. The others (Defond and Jaimbalva; Dichev & Skinner; Beneisk et al.) presented that accounting choices in the financial reporting of the collapsed firms depend on manager incentives. Healy and Palepu (1990) found that firms with intensive limitations on dividend, to get out of this position have tendency not to distribute dividends instead of manipulating of the accrual items. In addition, Sweeney (1994) observed that the collapsed firms before facing this situation engage in more accounting choices to step up earnings. In addition, Defond and others studied firms having debt contract problems and found evidence indicating that up-ward earning manipulation is to avoid debt contract defaults (Charitou et al., 2007).
Earnings quality is a concept, which has various dimensions. Therefore, several definitions and various assessment measures have been presented concerning earnings management. We represent some of them. Revsine et al. (1999) state that income has quality when it is persistent. In Richardson et al. (2002) view, earnings quality defines as the degree of operating income persistency in the future period. Beneish and Vargus (2002) define earnings quality as the possibility of current earning persistency in the future. According to Penman and Zhang (2002) earnings quality is earnings ability in indicating future earnings. Hodge (2003) states earnings quality as the degree of difference between reported net income and economic earnings. Mikhail et al. (2003) define earnings quality as the degree of a firm’s past earnings association with the future cash flows. One of the reasons of variety in the definitions of earnings quality is the differences among researchers’ views about various dimensions of this concept. Hence, earnings quality is complicated issue and none of the researchers has been able to present a perfect definition for it (Karami et al., 2006). However, it is obvious that in determination of earnings quality two characteristics are reported. One of them is usefulness in decision-making and the other ones is the relationship between earnings quality and economic income. Generally speaking, earnings quality is faithful presentation of reported income that is; the high earnings quality is an indicator of usefulness of income information for user's decision-making and its closeness with economic income. One of the items that can affect on earnings quality is the methods of income information presentation; that means, having more relevant and reliable characteristics result in high earnings quality (Ahmadpour and Ahmadi, 2008). According to Statement of Financial Accounting Concept No. 8 (FASB, 2010) “the objective of financial reporting (which includes earning reporting) is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling, or holding equity and debt instruments and providing or settling loans and other forms of credit”. In addition, it can be concluded that in accounting standard setters' view, the quality of financial reporting implies the quality of financial reporting standards. In other words, in investors view the low earnings quality is not favorable because it shows the existence of risk in the allocation of resources to this part and drive in slowing down economic growth by improper the allocation of resources. On the other hand, the low earnings quality distorts resources from the projects with actual return to the projects with artificial return, which leads to mitigate economic growth (Esmaeli, 2007).

As we mentioned before, the studies have been done regarding the effect of earnings management (income smoothing) has shown the paradox results of the relationship between these two subjects. For example, some of these researchers such as Kin Lo (2008) argue that earnings management and earnings quality have relationship and managed earnings have low quality. However, the absence of earnings management does not guaranty earnings quality because it may be influenced by other factors other than earnings management. For example, accountants might follow the poor accounting standards that result in the poor quality of financial reporting. If we consider other factors fixed, we may explain the relationship between EM and earnings quality more explicitly (Ball and Shivakumar, 2008). Schipper (1989) defines income smoothing as a deliberate manipulation of earnings in financial reporting process to achieve self-interest. Under this concept, opportunistic income smoothing has negative effect on earnings quality, that is, more income smoothing, less earnings quality. Zhao and Chen (2009) came to this end about income smoothing and the firm's antitakeover regulations that the firms following these regulations have low accrual items and consequently have high earnings quality and low earnings management. Kamel and Elbanna (2009) in a research about reported earnings quality in Egyptian firms state that the main goals of manipulating earnings in these firms are: creating a good condition for using bank facilities and presenting a optimal picture of firm’s performance for investors and increasing firm’s value. Also, their findings suggest that lack of
regulation, capitalizing expenditures and overstating inventories are the main reasons of earning manipulation by these firms which decrease earnings quality. Tucker and Zarwein (2006) in a study investigated about this question that “Does income smoothing improve income information content?” They observed that changes in present value of stock in the firms with high income smoothing have more information content about future income than the firms with low income smoothing.

In another research, Sabramaniam (1996) found that returns and the current discretionary items have positive relationship. While Hant et al. (2000) reported that income smoothing improves the relationship between income and stocks present value. Bao and bao (2004) investigated relationship between income smoothing, earnings quality and firm evaluation and found that firms practicing income smoothing have high earnings quality than firms not practicing income smoothing. Beaver (2000) argue that all sorts of income smoothing may improve or mitigate earnings and the financial reporting quality. In addition, he states that income persistency does not guaranty earnings quality and high stock value in the firms practicing income smoothing. Michelson (1995, 2000) ended up in the contrary results. He showed in 1995 if reported earnings have low quality, reported earnings and the firm's value in firms practicing income smoothing have a weak relationship. While he indicated in 2000 that if, reported earnings have high quality; reported earnings and firm's value in firms practicing income smoothing have a significant relationship.

So, taking these results from studies conducted in all around the world into account, regarding to the effects of income smoothing on the quality of reported earnings which, in some cases, have shown negative effect of income smoothing on the quality of reported income and, in some other cases, have indicated positive effect of income smoothing on the quality of reported income and also the same results concerning relationship between income smoothing and the collapsed firms listed in TSE, present study tries to answer the question that “Does income smoothing (whether real or artificial) increase the quality of reported earnings or decrease it in the active collapsed firms of TSE”?

Hypotheses Development

Main hypothesis: There is a significant relationship between income smoothing and the quality of reported earnings of active collapsed companies listed in TSE.

Sub H1: There is a significant relationship between real income smoothing and the quality of reported earnings of active collapsed companies listed in TSE.

Sub H2: There is a significant relationship between artificial income smoothing and the quality of reported earnings of active collapsed companies listed in TSE.

Methodology & Data Collection

The research samples consist of 96 firms listed in informal windows of TSE that were eliminated from formal windows of TSE according to business Law (Article 141). The existence of some limitations and non-uniformity among collapsed companies such as unavailability of some firm's financial reporting result in to consider some specific conditions in sampling as followings:

1- Sample firms must not have changed their fiscal period.
2- Sample firms’ financial statements must be available for the period of study.
3- Sample firms must not be investment or brokerage firms.

As a result of these conditions, a sample of 81 companies was obtained. These 81 firms have been studied for the period of 2004-2010.

Since, the study aimed to find a significant relationship between income smoothing and the quality of reported earnings of firms listed in TSE, so the study is correlation research. In
addition, the study is ex post facto research because it based on historical data analyses (firm's financial statements). In addition, income smoothing (artificial and real) at the three levels of earnings are considered as the independent variable and earnings quality as the dependent variable.

Considering reliability of the financial statements of the firms listed in TSE, the financial statements are applied in developing research. The financial statements are derived from TSE database for the period of 2004-2010. In addition, to test our hypotheses Excel, Eviews and SPSS softwares are used.

**Statistical Models and Methods of Research Hypotheses Testing**

To test hypotheses, first, income smoothing was evaluated through the mean absolute value of variable’s real deviation variations percentage from its trend for recognizing real income smoother firm and Eckel’s Criterion (1981) for artificial income smoother firm. Then, the quality of reported earnings was measured by using Dechow & Dichev (2002) and Richardson (2004) models. Finally, after measuring research variables, the relationship between variables among collapsed firms were tested. The statistical models used in the research are as followings:

1. Mean absolute value of variable’s real deviation variations percentage from its trend for recognizing real income smoother firm.

One of the dispersion indexes to separate the income smoother from the non-income smoother firm is the mean absolute value of variable’s real deviation variations percentage from its trend. In this model, first, the mean absolute value of total variations is evaluated in each year to previous year. Measurement variables are EBIT, operating income and net income. Mean of variation trend is calculated as following (Alame Haeri, 2000):

**Equation 1:**

\[
T = \frac{1}{n-1} \sum \left| \frac{Y_{i+1}}{Y_i} \right|
\]

Then level of income smoothing is measured through the mean absolute value of variable’s real deviation variations percentage (EBIT, operating and net income) from its trend (equation 1):

**Equation 2:**

\[
S = \frac{1}{n-1} \sum \left| \frac{(Y_{i+1}/Y_i) / T}{T} \right|
\]

T: mean absolute value of total variations in each year to previous year
Y: EBIT, operating and net income of firm (i)
N: period of study

By applying above equations in all the firms, the smoothing degree of EBIT, operating income and net income smoothing are measured. To determine the value of S (level of dispersion indicating firms income smoothing) two methods are used. One method is using calculated median coefficients of S and the other one is through finding fitness curve of distribution type which is normal logarithm and done by depicting accumulated distribution and selecting the median point of 50%. These coefficients used for separating the smoother firms from the non-smoother firms through deliberate smoothing (real or artificial).

Eckel’s Criterion for testing artificial income smoothing is as following:

\[
\frac{CV_{\Delta income}}{CV_{\Delta sales}} < 1
\]

\(CV_{\Delta income}\) : Coefficient of variation of time series income changes
\(CV_{\Delta sales}\) : Coefficient of variation of time series sales revenues changes

Eckel’s Criterion compares income variations with sale variation. The main logic underlying in Eckel’s Criterion is fixed expenses behavior. In other words, the existence of fixed expenses cause, in normal condition (income is not manipulated deliberately), that income variation be more than sales variation. Firms have been practicing income smoothing, any reasons, do not obtain coefficient of variation of time series income changes to coefficient of variation of times series sales revenues changes of one or less are not recognized as the artificial income-smoother firm. However, it can be said that by applying Eckel’s Criterion for recognizing the income smoother firms in a statistical sample, firms will be recognize as an income smoother that was completely successful in this regard. If above ratio be equal or more than one, firm is not recognized as an artificial income smoother but still may be real income smoother (Badri, 1999).

Earnings Quality Measurement Models
For evaluating earnings quality, Dechow & Dichev (2002) and Richardson (2004) models are used.

According to this model, the accrual items are used as a proxy for evaluating earnings quality as following:

\[
TACC_{it} = \Delta WC_{it} + \Delta NCO_{it} + \Delta FIN_{it} + \epsilon_{it}
\]

\(TACC_{it}\): accrual items
\(\Delta WC_{it}\): working capital variations
\(\Delta NCO_{it}\): non-current operating assets variations
\(\Delta FIN_{it}\): financial assets variations

As it can be observed, in above model, TACC_{it} is used as a proxy for evaluating earnings quality as less accrual items lead to more income persistency, therefore, increase earnings quality.

This model is created assuming that the time of realizing revenue and expenses is other than when they are received or paid. For this reason (asymmetric timeliness), the accrual items are reported. The model focuses on two figures of accruals including working capital and operating cash flows because of its easiness in traceability. Since they will be settled during maximum one year, we use residual absolute value that stems from working capital and operating cash flows from operating activities in the previous, present and future years as a reverse measure of the accrual items quality. Greater (smaller) amount shows lower (higher) accrual items quality.

\[
\frac{WCA_{it}}{AvgAssets_{it}} = \beta_0 + \beta_1 \frac{CFO_{it}}{AvgAssets_{it}} + \beta_2 \frac{CFO_{it-1}}{AvgAssets_{it-1}} + \beta_3 \frac{CFO_{it-2}}{AvgAssets_{it-2}} + \epsilon_{it}
\]

\(WCA_{it}\): Working capital accrual items of firm (i) in year (t) equals to variations in cash and cash equivalent less variations in current debt.
\(CFO_{it}\): Cash flows from firm (i) operating in years t+1, t, t-1.
AvgAssets<sub>i&t</sub>: Average total assets of firm (i) in year (t). It should be noticed that for reducing variation inequality in model error, research variables divided by total assets.

**Empirical Results**

Descriptive statistics and analyses results are presented as following:

Table 1: Findings of descriptive statistics

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Earning Quality</th>
<th>Operating Income</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Real</td>
<td>Artificial</td>
<td>Real</td>
</tr>
<tr>
<td>Mean</td>
<td>-0.218179</td>
<td>0.219707</td>
<td>0.506173</td>
</tr>
<tr>
<td>Median</td>
<td>-0.080421</td>
<td>0.098548</td>
<td>1.0000</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.208818</td>
<td>3.167448</td>
<td>1.0000</td>
</tr>
<tr>
<td>Minimum</td>
<td>-3.616573</td>
<td>0.003749</td>
<td>0.0000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.483277</td>
<td>0.389621</td>
<td>0.503077</td>
</tr>
<tr>
<td>Skewness</td>
<td>-3.767167</td>
<td>5.640895</td>
<td>-0.024693</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>31.9394</td>
<td>41.8788</td>
<td>1.0006</td>
</tr>
</tbody>
</table>

As we can see in Tables 2 and 3, regarding to this hypothesis, the relationship between income smoothing and earnings quality through Dechow & Dichev (2002) and Richardson (2004) models and by using liner regression is tested. As it is indicated in the P-value column, the P-value in both models is more than %5 (significance coefficient) and consequently H<sub>0</sub> hypothesis is accepted in 0.95 significance level and H<sub>1</sub> hypothesis is rejected that shows there is no relation between income smoothing at the level of EBIT and the quality of reported income. Considering positive sign of β<sub>1</sub> in the estimated regression equations, we can say, although there is a weak correlation, income smoothing at the level of EBIT has a positive weak effect on the quality of reported earnings. That is, income smoothing at the level of EBIT in the active collapsed firms of TSE results in slightly increasing in the quality of reported earnings.

Table 2: The result of testing the first sub-hypothesis at the level of EBIT - **Richardson Model**

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R</td>
</tr>
<tr>
<td>3.66%</td>
<td>4.86%</td>
<td>22.05%</td>
</tr>
</tbody>
</table>

Y<sub>t</sub> = -0.325447 + 0.211919 X<sub>i</sub>

Table 3: The result of testing the first sub-hypothesis at the level of EBIT - **Dechow & Dichev Model**

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R</td>
</tr>
<tr>
<td>7.56%</td>
<td>8.72%</td>
<td>29.53%</td>
</tr>
</tbody>
</table>

Y<sub>t</sub> = 0.22871 + 0.335474 X<sub>i</sub>
Considering the negative sign of $\beta_1$ in the estimated regression equations in Tables 4 and 5, we can say, although there is a weak correlation between variables, income smoothing at the level of operating income has a negative weak effect on the quality of reported earnings. That is, income smoothing at the level of operating income in the active collapsed firms of TSE drives in slightly decreasing in the quality of reported earnings.

Table 4: The result of testing the first sub-hypothesis at the level of operating income—Richardson Model

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>2.37%</td>
<td>3.59%</td>
</tr>
</tbody>
</table>

$Y_i = -0.126 - 0.182X_i$

Table 5: The result of testing the first sub-hypothesis at the level of operating income—Dechow & Dichev Model

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>3.89%</td>
<td>4.72%</td>
</tr>
</tbody>
</table>

$Y_i = 0.1863 - 0.0659X_i$

With respect to the positive sign of $\beta_1$ in the estimated regression equations in Tables 6 and 7, we can say, considering correlation coefficient column, although there is a weak correlation between variables, income smoothing at the level of net income has a positive weak effect on the reported earnings quality. That is, income smoothing at the level of net income in the active collapsed firms of TSE leads to slightly increasing in quality of reported earnings.

Table 6: The result of testing the first sub-hypothesis at the level of net income—Richardson Model

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1.98%</td>
<td>2.42%</td>
</tr>
</tbody>
</table>

$Y_i = -0.23072 + 0.02477X_i$

Table 7: The result of testing the first sub-hypothesis at the level of net income—Dechow & Dichev Model

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1.4%</td>
<td>2.63%</td>
</tr>
</tbody>
</table>

$Y_i = 0.2833 + 0.1256X_i$
As we can see in Tables 8 and 9, regarding to this hypothesis the relationship between income smoothing and earnings quality through Dechow & Dichev (2002) and Richardson (2004) models and by using liner regression is tested. As it is indicated in the P-value column, the figure of the P-value in both models is more than 5% (significance level) and consequently H<sub>0</sub> hypothesis is accepted in 0.95 significance level and H<sub>1</sub> hypothesis is rejected manifesting there is no relation between income smoothing at the level of EBIT and the quality of reported earnings. Considering the positive sign of β<sub>1</sub> in the estimated regression equations, we can say, taking correlation coefficient column, although there is a weak correlation between above variables, artificial income smoothing at the level of EBIT has a positive weak effect on quality of reported earnings. That is, artificial income smoothing at level of EBIT in the active collapsed firms of TSE drive in slightly increasing in the quality of reported earnings.

Table 8: The result of testing the second sub-hypothesis at the level of EBIT - **Richardson Model**

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R</td>
</tr>
<tr>
<td>0.41%</td>
<td>1.65%</td>
<td>22.05%</td>
</tr>
</tbody>
</table>

Y<sub>1</sub> = - 0.2748 + 0.124 X<sub>i</sub>

Table 9: The result of testing the second sub-hypothesis at the level of EBIT - **Dechow & Dichev Model**

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R</td>
</tr>
<tr>
<td>0.084%</td>
<td>2.08%</td>
<td>14.42%</td>
</tr>
</tbody>
</table>

Y<sub>1</sub> = 0.271 + 0.1123 X<sub>i</sub>

Taking into consideration the negative sing of β<sub>1</sub> in the estimated regression equations, we can say, although there is a weak correlation between above variables, artificial income smoothing at the level of operating income has a negative weak effect on the reported earnings quality. That is, income smoothing at the level of operating income in the active collapsed firms of TSE results in slightly decreasing in the quality of reported earnings.

Table 10: The result of testing the second sub-hypothesis at the level of operating income - **Richardson Model**

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>R</td>
</tr>
<tr>
<td>0.98%</td>
<td>1.59%</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

Y<sub>1</sub> = - 0.1744 - 0.09 X<sub>i</sub>
Table 11: The result of testing the second sub-hypothesis at the level of operating income - **Dechow & Dichev Model**

There is a significant relationship between artificial income smoothing at the level of operating income and the quality of reported earnings of the active collapsed companies listed in TSE.

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1.86%</td>
<td>2.35%</td>
</tr>
</tbody>
</table>

$Y_i = 0.1877 - 0.0664 X_i$

With respect to the results of Tables 12 and 13, there is a weak correlation between artificial income smoothing and earnings quality at level of net income. That is, artificial income smoothing at the level of net income in the active collapsed firms of TSE slightly results in increasing in the quality of reported earnings.

Table 12: The result of testing the second sub-hypothesis at the level of net income - **Richardson Model**

There is a significant relationship between artificial income smoothing at the level of net income and the quality of reported earnings of the active collapsed companies listed in TSE.

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>0.92%</td>
<td>1.35%</td>
</tr>
</tbody>
</table>

$Y_i = -0.23472 + 0.048 X_i$

Table 13: The result of testing the second sub-hypothesis at the level of net income - **Dechow & Dichev Model**

There is a significant relationship between artificial income smoothing at the level of net income and the quality of reported earnings of the active collapsed companies listed in TSE.

<table>
<thead>
<tr>
<th>Correlation Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1.15%</td>
<td>1.65%</td>
</tr>
</tbody>
</table>

$Y_i = 0.2418 + 0.064 X_i$

**Discussion and Conclusions**

On the one hand, considering the results of studies conducted in worldwide regarding the effects of income smoothing on the firms reported earnings quality is mixed; on the other hand, taking the results of studies regarding possibility of manipulation in profit and loss figures in listed firms of TSE through income smoothing, based on the previous research, we tried to answer this question that “Does income smoothing (whether real or artificial) increase the quality of reported earnings or decrease it in the active collapsed firms of TSE”? To find a sound answer to the question and increasing the robustness of the results, earnings quality by using Dechow & Dichev (2002) and Richardson (2004) models at different levels of earnings including EBIT, operating income and net income were evaluated and finally tested statistically. Empirical results in both methods and at the all levels of income, vice versa with most of the previous results in other parts of world, drive in rejecting the research hypotheses showing that there is not significant relationship between income smoothing and earnings quality in the active collapsed companies listed in TSE. In other words, although there is a very weak relationship between the research variables, since the relationship is very weak between variables so we can ignore the relationship. This result is contrast with the results of Kin Lo (2008) and Bao and bao (2004) and Beaver (2000) and Michelson (1995, 2000). Therefore, we can interpret that since the active collapsed companies listed in TSE have been loss-maker for several years and have not reported...
any profit, hence, profit and loss manipulating by income smoothing in these firms have not effected on the quality of profit and loss. In other words, main purpose of the collapsed companies’ managers from manipulation of profit and loss figures is merely to maintain their firms in the capital market and to prevent dropping of the market value of the firm. However, the quality of earnings figures for the collapsed companies’ managers has not dominant importance while they are in the critical condition. These are the results of all the research hypotheses at the all levels of income that at 95% significance level is found.

**References**


Corresponding Author

Saeid Jabbarzadeh Kangarlouei can be contacted at: Dr_jabbarzadeh@yahoo.com