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Investigation the Effect of Income Smoothing and Auditor's Opinion on the Financial Bankruptcy of Companies Listed in the Tehran Stock Exchange

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Abstract

The aim of study is to investigate the effect of income smoothing and auditor's opinion on the financial bankruptcy of companies listed in Tehran stock exchange. In the analyses was used data of 70 companies listed in Tehran Stock Exchange in the period 2006 to 2013 and research hypotheses were analyzed with the help of statistical method of logistic regression. Significant variable coefficients and the model was confirmed in 95% confidence level .The research results showed that there is significant relationship between income smoothing and auditor's opinion with financial bankruptcy of companies.

Introduction and Problem Statement

The economic consequence of corporate failure is enormous, especially for the stakeholders of public-held companies. Prior to a corporate failure, the firm's financial status is frequently in distress. Consequently, finding a method to identify corporate financial distress as early as possible is clearly a matter of considerable interest to investors, creditors, auditors and other stakeholders. The significance of this issue has stimulated a lot of research concerning the prediction of corporate bankruptcy or financial distress. Auditing plays a considerable role in validating the firms' earnings data following the current representation of firms' earnings and the bankruptcy of the big companies. Thus, Auditing quality is considered to be one of the principle foundations regarding the reliable data. Auditing is called an important element of strong corporate governance and it has been considerable noticed in Iran due to the trend towards privatization in Iran and the necessity of having higher quality financial statements. Auditors should be interested in acknowledging the probability in the going-concern of the company. State agents need a reliable diagnostic tool to support bankrupt companies. Financial health of a company can help each individual beneficiary (for example clients, employees and managers). Many studies have been done to find effective experimental methods to predict the financial crisis that its result is the creation of different models to predict financial crisis. Studies show that the companies' going-concern has a close connection with company's ability to fulfill its commitments. Vast and horrible effects of the bankruptcy issue, has made it an important subject of the recent and elderly studies initiating almost from 1960s which so far, so many techniques and models have been developed by the academic and professional bodies to mitigate such risks for the stakeholders, nevertheless, though such attempts and awareness made by the auditors and financial analysts, bankruptcy cases are still filed at the regulatory authorities and many people lose. Companies in all kind of fields are interested in the performance of their business. The prediction of financial soundness of a business has led to presence in many academic work and newspaper; especially in times of financial crises and economic downturns. Income smoothing has been a topic of interest in the accounting and finance literature for decades. In most studies, the income smoothing practice was viewed as "immoral", "cheating" and "misleading" on the part of the firm's management. Income smoothing has been a topic of interest among many researchers. Initially, the researchers started off with discussions and arguments as well as giving evidence on the existence of income smoothing activities. According to the results of an internal investigation and abroad and the lack of sufficient knowledge of the factors and predictor financial crisis in Iran Further studies is necessary in this field.

Theoretical Bases and Overview on Research Literature

Various terms are used to describe failures in the finance literature, some of these words include adverse economic conditions, failure, and failure in business. In Webster's dictionary, "bankruptcy" is defined as "insufficient funds to pay short-term debt. The investors and creditors have greater tendencies to predict the bankruptcy of organizations, because in case of bankruptcy they would endure the expenses. That is the reason for predicting the bankruptcy of organizations is an important issue to make decisions for financial in- statutes. A wrong decision could end in crisis or financial straits. In general, it can be mentioned that for all of the users of Financial Statements (managers, Investors, employees, shareholders, creditors and other beneficiary persons), being aware of this prediction Is in great value from managing point of view, the tools to predict the financial bankruptcy are able to activate the strategic actions when needed and to avoid bankruptcy. Altman et al. [1] research stated, bankruptcy prediction models can be used to judge the ability of the auditor to help continue the activity. For this purpose, they bankrupted 34 companies during the period 1970 to 1973 were reviewed. Results showed 82% of the linear models to predict bankruptcy, bankruptcy prediction and sign them, but only 46% of the issued audit report to the uncertainty has been noted about the ability to continue the activity. Companies which have problems related to debt contracts were examined and evidence of manipulating earnings upwards (re) gain by the management of debt contracts in order to avoid was reached on the violations. The predictors of environmental bankruptcy is Iran payments. His research sample consists of 30

manufacturing companies and 30 companies without financial crisis was a financial crisis. The initial ratio of 22, after the necessary studies that showed the five ratios of liquidity, profitability, leverage position, operating performance and market selection, and they can be used in the final model. The results showed that we can predict the financial crisis, but the predictive power of the model was low for long periods. Three general methods for identifying income smoothing behavior: (1) direct ascertainment from the management through interviews, questionnaires, or observation; (2) contact with second parties such as CPA's; or (3) examination of ex-post data. However, the researchers were inclined to use the third method in determining the income smoothing practice. Beaver [2] who utilized the uni–variable analysis technique for use in investigation. His utilization of the paired-sample approach and the use of a hold-out sample to validate the model has been a benchmark for later researchers. Altman [3] tried to explore a bankruptcy prediction model with more financial statement variables taken into consideration, allowing the multi-variate discriminant function to be applied to his data. Daekin [4] used the logit model for bank failure prediction. Frydman et al. [5] believe that the audit could be one way to prevent and reduce earnings management and the confidence level is more than the stock returns for future periods. It is believed, companies that provide audited financial statements with information content and higher quality earnings. Accruals related to the judgment of managers. Accruals and audit firms that have more, be more difficult. Newton [6] concluded in their studies that there is a negative significant relationship between audit quality and management mechanisms.

Pour Heidari [7] considered 50 firms listed on the Tehran Stock Exchange and studied the income smoothing through selling the assets. The results confirm the income smoothing so that the sale earnings smooth's the temporary changes.

Research Hypotheses

Research hypotheses are as follows

H1: There is a significant relationship between income smoothing and financial bankruptcy of companies.

H2: there is a significant relationship between auditor's opinion and financial bankruptcy.

Research Model and Its Variables

This study sought tries to investigate the Effect of income smoothing and auditor's opinion on the financial bankruptcy of Companies listed in the Tehran Stock Exchange. This study is applied research and the Pearson correlation method and logistics regression and also Eviews software will be used in data analysis. Research variables include independent variable, dependent variable and the control variable.

Income smoothing

This research employed the coefficient of variation method developed by Pourzaman [8] to determine the presence of income smoothing. In this method, the coefficient of variations is used to measure the variability of sales and income. This method has been used by many previous studies in determining the presence of income smoothing, which is considered as independent variables in this study and is determined by using the following equation:

Equation (1)

$$CV_{Total} = \frac{CV\Delta I}{CV\Delta S} = \frac{\sqrt{\frac{\sum \left(\Delta I_i - \overline{\Delta I}\right)^2 / (n-1)}{\overline{\Delta I}}}}{\sqrt{\frac{\sum \left(\Delta S_i - \overline{\Delta S}\right)^2 / (n-1)}{\overline{\Delta S}}}} < 1$$

"ΔI"=profit changes in a financial period

"ΔS"=sales changes in a financial period

$(\Delta I)^-$=average earning changes

("ΔS")=average sales changes

CV=coefficient of variation

This method measures income smoothing by aggregating the effects of potential smoothing variables and considering them over time.

Auditor's opinion

Which is considered as independent variables in this study and in this study and include the following criteria:

W Audit: auditor's opinion on the continuity of the companies in the audit report for year t-1

R Maud: Adjusted of the auditor's opinion in t-1

F Audit: predicted Article 141 by the auditor in t-1

T Audit: The type of auditor's opinion in t-1

Sale growth

Dummy variable for the growth of sales in the year t and t-1 and t-2 are considered. Which is considered as control variables in this study. Also in this study, the dependent variable is financial bankruptcy.

Research Methodology

This study examines the relationship between the variables. The findings of the study might be employed in the decision-making process and that is why this is classified as an applied study. The required information is gathered from library studies and using the prior literature, journals, the related articles and the information on the financial statements of the Tehran listed firms. This study covers a period from 2006 to 2013. 113 companies are selected as sample that the information related to it includes informational database and existing informational software, then 70 companies were selected to test the research's hypotheses (35 as a bankrupt company and 35 as the company is working). The companies under study were categorized into solvent and insolvent companies by virtue of article 141 of Commercial Code.

Research Hypotheses' Testing

Research hypotheses' testing is as follows

After testing different compositions of variables and removing unhelpful variables, we identified the following variables as independent variables in the final model, also WAuditi,t-1 and Rmaudi,t-1 and FAuditi,t-1 were eliminated because of linear correlation of the model.

LN (P/1-P) = β0 + β1INSMi + β2TAUDITi, t-1 + β3SALEGRi, t-1 + β4SALEGRi, t-2

In this equation:

INS MI: Income smoothing

TAUDITi, t-1: The opinion of the auditor in t-1

SALEGRi, t-1: The growth of sales in the year t and t-1

SALEGRi, t-2: The growth of sales in the year t and t-2

The fitting results of the logistic regression on factors are indicated in Table 1.

As can be seen in the table, the INSM coefficient (-2.48336) indicates the negative relation between the income smoothing and the bankrupt companies. Given that the probability variable of INSM is (0.0119), therefore, this hypothesis is confirmed; the results also indicate a positive and insignificant relation between the type of auditor's opinion and bankrupt companies. Wald statistic was used to evaluate the significance level of logistic regression function. To be added, like the study of the significance level of linear regression function, here the null hypothesis was that the variable had no effect on the dependent variable which was tested using the respective statistics. Significance level of Wald statistic for INSM, TAUDIT and SALEGR01 is less than 0.05. Thus, the null hypothesis for the named variables is rejected and the coefficients are significant. Having estimated the coefficients of model independent variables and their significance, we studied the total significance of the regression model and the goodness of its fitness. Several statistics were used to study the goodness of logit regression model: Mc Fadden R-square statistic which is similar to R2 statistic in linear regression is 0.577672 in our model. To be added, the value is acceptable according to similar researches for logit model. LR statistic which is similar to F statistic in linear regression model, LR statistical probability of this model is (0/000), it can be said that this model was significant at a confidence level of 99% and has high validity. As Table 3 shows the fitted model correctly classified 35 y=0 observations and 35 y=1 observations. In statistics literature Table 3 is called classification table. Y=1 observations which are correctly predicted are called sensitivity coefficient of the model and Y=0 observations which are correctly

predicted are called specificity coefficient of the model. Sensitivity and specificity coefficients of the model are entered as percentage in Table 3. All in all, it can be said that the fitted model correctly predicted 94.29 of all Y=1 observations and 88/57 of all Y=0 observations. In other words, the sensitivity of the model is 94.2 and its specificity is 88/57. The results also indicate a positive and insignificant relation between the SALEGR01and SALEGR02 and bankrupt companies, this variable coefficients (1.383273) and (1.366978) indicates if the auditor's opinion is non-favorable, Logarithm of the bankruptcy its continuous increases in the same terms.

Inter method was used for logistic regression and all the independent variables were entered in the model simultaneously. In the models, the significance level of coefficients was tested using Wald statistic, total significance of regression was tested using LR statistic ($P<0.05$) and lack of linearity of variables and lack of estimation error were studied. Finally, after testing different compositions of variables and removing unhelpful variables, we identified the following variables as independent variables in the final model (Table 2).

Table 2 shows that Wald statistic for the 4 variables is less than 0.05 meaning that the null hypothesis is rejected for all the coefficients; therefore, the coefficients were significant. The overall form of the logit function is as follows:

$$LN\ (P/1-P) = \beta 0 + \beta 1 INSMi + \beta 2 TAUDITi, t-1 + \beta 3 SALEGRi, t-1 + \beta 4 SALEGRi, t-2$$

In this equation:

INS MI: Income smoothing

TAUDITi, t-1: the opinion of the auditor in t-1

SALEGRi, t-1: the growth of sales in the year t and t-1

SALEGRi, t-2: the growth of sales in the year t and t-2

The fitting results of the logistic regression on factors are indicated in Table 3.

Test Results of Research Hypotheses

The first hypothesis testing

The purpose of formulating the first hypothesis is to investigate the relationship between income smoothing and financial bankruptcy. According to the results obtained in Table 2 from estimating the model, coefficient of INSM variable is equal to -2.483366 and according to its P-Value which is equal to 0.0119and less than error level 0/1; consequently this hypothesis is confirmed at the 0.90 confidence level.

The second hypothesis testing

The purpose of formulating the second hypothesis is to investigate the relationship between Auditor's opinion and financial bankruptcy. According to the results obtained in Table 2 from estimating the model, coefficient Auditor's opinion variable is equal to 4.187191 and according to its P-Value which is equal to 0.0024 and less than acceptable error level of 0.1; consequently this hypothesis is confirmed at the 0.90 confidence level.

Conclusions and Recommendations

Financial bankruptcy of companies is one of the important issues in financial decision making scope that entails micro and macro consequences in the societies for which prediction noticeable tools and models different in terms of methodology or variables are presented

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.692498	4.537421	-0.593398	0.5529
INSM	-2.483366	0.987149	-2.515695	0.0119
SALEGR	1.287259	0.679701	1.893861	0.0582
SALEGR01	1.383273	0.654768	2.112616	0.0346
SALEGR02	1.366978	0.629093	2.172935	0.0298
TAUDIT	4.187191	1.376517	3.041874	0.0024
McFadden R-squared	0.577672	Mean dependent var		0.5
Prob(LR statistic)	0			
Obs with Dep=0	35	Total obs		70
Obs with Dep=1	35			

Table 1: Test of research hypotheses.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.6925	4.537421	-0.5934	0.5529
INSM	-2.48337	0.987149	-2.5157	0.0119
SALEGR01	1.383273	0.654768	2.112616	0.0346
SALEGR02	1.366978	0.629093	2.172935	0.0298
TAUDIT	4.187191	1.376517	3.041874	0.0024

Table 2: Significant model variables.

0=y (company is working)		1=y (bankrupt)	0.5
31		2	P(Y) ≤ 5/0
4		33	P(Y) > 5/0
35		35	Total=70
observations	sensitivity coefficient	specificity coefficient of the model	
88/57	94/29	91.43	

Table 3: Model prediction power.

at international level. This paper has presented a logistic regression based model. The purpose of this research is to test the proposition that income smoothing and auditors opinion would favorably affect the bankruptcy companies. Analysis from the sample companies listed on the Tehran Stock Exchange using the coefficient of variation method has manifested the presence of income smoothing practices in Iran. Further tests conducted, with due consideration of the econometric Problems that may distort the accuracy of the result, led to the same conclusion. However, the results show that Analysts provide useful information to:

1-Fund investments such as buying and selling stocks and…

2-Also creditors for lending to companies and...

3-Status recognition by governments and other users

Taking into account the opinion of the auditors and patterns of detect income smoothing in the companies, help to these groups in order to guide better resources and control on suitable substrates.

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