INVESTIGATING THE RELATIONSHIP BETWEEN AUDIT INDICES AND PROVIDING A MODEL FOR ESTIMATING INDEPENDENT AUDIT FEES

(Recibido el 05-07-2017. Aprobado el 06-09-2017)

Boshra Moazami Godarzi  
Islamic Azad university, MA in Accounting  
Department of accounting, Boroojerd, Iran

Mahmoud Hematfar  
Islamic Azad university, PhD in accounting  
faculty member, Boroojerd, Iran  
Email: Dr.hematfar@yahoo.com

Abstract. This research has considered the aspect of agency theory to present a suitable model for estimating audit fees. This research tries to examine the impact of two categories of general factors and representative costs that affect the risk, volume and complexity of the unit's operations, as independent research variables, and the dependent variable is the audit fee. The purpose of the research is pricing for auditing services in order to provide a model for estimating audit fees. In this study, general factors affecting audit fees are included: the mean logarithm of the total of all outputs operating profit, Distribution of interest deduction and Tax on assets, the ratio of receivables to assets and year-end financial and effective representing indicators on wages are: the ratio of total debt to assets, the ratio of non-executive directors to the total members, the ratio of the share of government entities, the ratio of the share of the first major shareholder. The main research hypothesis is the relationship between the cost of representation and audit fees, and for review this relationship multivariate regression is used. The information needed to test the hypotheses has been collected from listed companies in Tehran Stock Exchange for the years 2015-2016. The results of the research show that there is a meaningful relationship between the cost of representation and audit fees.

Keywords: agency costs, independent audit, audit of financial statements

1. INTRODUCTION

The auditor’s financial interests are secured through a fee that comes from contracting with the clients. Auditors use a variety of factors for pricing audit services, and a lot of research has been done on identifying and evaluating these factors. Descriptive factors in most studies include risk factors, volume and complexity of the unit’s operations. Audit fees have been the subject of many audit investigations and numerous investigative work has been conducted to examine the factors affecting audit fees. (Nikbakht and Tani, 2010).

For example, Hasas Yegane and Alavi Tabari (2003) examined the relationship between resources spent on internal auditing and independent auditing costs. The aim is to identify the determinants of audit fees and internal identify the impact of internal audit to reduce audit fees firm and the effect of increasing levels of management that internal auditors to report on the quality of the work of internal auditors and the usefulness of their independent auditors. The results of the research showed that independent audit fees are related to the complexity of an enterprise, the increase in resources spent on the internal audit department of the firm reduces the cost of independent auditing, and this decrease is higher in enterprises, with domestic auditors having a higher level than the financial assistant and Office provide reports.

Rajabi and Mohammadi Nashoii (2008) examined the relationship between the cost of representation and pricing of independent auditing services on companies admitted to the Stock Exchange during 2005. This research was done by using regression statistical method. Results showed that average total assets and operating revenues, the percentage share of the first Suha circuit of the end of the financial year and the auditor's audit fees significantly associated with each other but other factors related to agency costs, including the accounts receivable and inventories, the total assets, the ratio of total debt to total assets, the profit before interest and tax deduction to the total assets are not statistically significant with audit fees.

Khodadadi and Hajizadeh (2011) also investigated the impact of the cost of representation on the hypothesis of free cash flow on audit fees in a study entitled "Independent Audit: Independent Audit Dealership and Audit: This study on Free Cash Flows has been done within 2014 to 2016 and panel data regression was performed to confirm that the overall results are positive relationship between agency costs of free cash flows of the company and the current audit fees. Also, evidence suggests that there is a positive and significant relationship between the level of debt and audit fees in companies with high cash flows, and there is a negative and significant relationship between the ratio of future growth opportunities and audit fees.

Instead, significant research has been done in countries such as the United States, England, Australia, France, New Zealand, Finland, Canada, Japan, India, Bangladesh, Taiwan, Singapore, UAE and Kuwait. Most of these researches pursue a major goal, and it identifies the factors influencing audit fees, due to the large and large number of these investigations, the similarity of statistical methods (most of them using statistical regression method). Some researchers such as in the United States (Saymonyk, 1984 - Frances and Simon, 1987 - Palmroes, 1996 - Geest, 1992 - Racing and others, 2007 - Anans and others, 2002 - Fred and Dyoosh, 2008 - Ramgopal and others, 2008 - Rani et al., 2008) in the United Kingdom (Taylor and Baker, 1981 - Toffler and Rhamallingam, 1982; Chan et al., 1993; Pang and Whittington; 1994; Brin et al., 1994; Mark and Michel, 2007; Noel, 2008; Nation and others, 2007) in Australia (Franss, 1984; Frances and Stuck, 1986; Jab et al., 1996; Krasoul and Frans, 1999) in New Zealand (Fairies, 1985; Johnston et al., 1995; Don Moore and Shaw, 2006; ) In Finland (half, 2004) in France (Natalie and Eileen, 2007) in Kun Ada (Chong and Lindsay, 1988); Anderson and Zagal, 1994) in Japan (Taylor, 1997) in Taiwan (Chong et al., 2008) in Singapore (Lu et al., 1990) in Hong Kong (Deffand et al. 2000) India (Simon et al. 1986) in Pakistan (Simon & Taylor, 1997) in Bangladesh (Karim & Mozazzar, 1996) and Kuwait (Meshari, 2008).

2. RESEARCH HYPOTHESES

2.1. The main hypothesis:

There is a meaningful relationship between the cost of representation and audit fees

2.2. Sub hypotheses:

2.2.1. There is a significant relationship between average of total assets and operational right with audit fees.
2.2.2. There is a significant relationship between the ratio of total accounts receivable to total assets and audit fees.

2.2.3. There is a significant relationship between earnings before Interest Tax Deduction and the right to audit fees.

2.2.4. There is a significant relationship between total debt and audit fees.

2.2.5. There is a significant relationship between the end of the financial year and the right to audit fees.

2.2.6. There is a significant relationship between the outside members of the board and the right to audit fees.

2.2.7. There is a meaningful relationship between the percentage of public entities and audit fees.

2.2.8. There is a meaningful relationship between the percentage of the share of the first major shareholder and the auditor's audit.

3. METHODOLOGY

This research is in terms of developmental purpose, in terms of nature and method of correlation. To collect material related to the subject literature, the library methods are used by studying books, magazines and articles, and Persian and English blogs, stock market reports and computer programs. To collect information and research data, financial statements of companies accepted in Tehran Stock Exchange for 2013, 2014, 2015 have been used.

According to the statistical population of this research, which companies accepted in Tehran Stock Exchange are 2013, 2014, 2015, the sample size is calculated after the initial study and using appropriate statistical methods. Then, by collecting the initial data, these data were analyzed through descriptive and random sampling methods and will be analyzed using software EXCEL, SPSS.

3.1. Population

The statistical population of this research is considering the location of the companies admitted to the Tehran Stock Exchange and according to the cross-sectional nature of the research, 2013, 2014, 2015 are considered as the realms of time.

4. RESEARCH MODEL

\[
\ln \text{Fee}_i = \alpha + \beta_1 \ln \text{Ass.Rev}_i + \beta_2 \text{Rec.Ass}_i + \beta_3 \text{Roa}_i + \beta_4 \text{Deb}_i + \beta_5 \text{Year}_i + \beta_6 \text{Nexe}_i + \beta_7 \text{S.Govern}_i + \beta_8 \text{S.Owner}_i
\]

1) \( \ln \text{fee} \) = The logarithm is the average of the total assets and operating income and the independent variable.

2) \( \ln \text{Ass.Rev} \) = The ratio of total receivables to total assets; the independent variable is public.

3) \( \text{Rec.Ass} \) = The ratio of profit before deduction of interest on total assets is the general variable independent.

4) \( \text{Roa} \) = The ratio of the total debt to the total assets, the independent variable and the representative cost of representation.

5) \( \text{Deb} \) = The end of the fiscal year and the independent general variable

6) \( \text{Year} \) = The ratio of non-executive board members to total, independent variable, and agency cost index.

7) \( \text{Nexe} \) = The share of government institutions is an independent variable and agency cost index.

8) \( \text{S.Govern} \) = The share of government institutions is an independent variable and agency cost index.

9) \( \text{S.Owner} \) = Percentage share of the first major shareholder, independent variable and agency cost index.

After examining research hypotheses, this model will be presented as a final model consisting of meaningful variables. In order to present the model, the traditional method of studies in the pricing of audit services has been used. Based on this method, a multivariate regression model is developed to examine the effect of various factors on the audit fees charged in the present research to these factors in the cost indexes of representation. In this research, using such a method, the dependent variable is the fees for audit services and the independent variables of agency costs that are
presented in the form of a multivariate regression model.

Firstly, how to apply and calculate each of the primary variables, then the cost indicators of representation are presented as the main variables of the research.

\[
\begin{align*}
       r &= \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}} \\
       &= \frac{\text{cov}(x,y)}{\sigma_x \sigma_y}
\end{align*}
\]  

(1)

5. RESULTS

5.1. The statistical methods:

In this study, statistical methods of descriptive statistics (frequency distribution tables; mean; standard deviation and variance) and inferential statistics (correlation test; t And test F Fisher; Kolmogorov-Smirnov test ; Durbin Watson ; relative consistency test) are used for a summary and analysis of research data. The statistical software used in this research includes EXCEL and SPSS.

5.2. Correlation:

The correlation analysis is a statistical tool for determining the type and extent of the relationship between a small variable and a slightly different variable. Correlation coefficient is one of the criteria used to determine the correlation between two variables. The correlation coefficient is the intensity of the relationship, as well as the type of relationship (direct or inverse). This coefficient is between 1 and 1, and in the absence of the relationship between the two variables is equal to zero.

Pearson (r) with the use of the equation (2-3) is computed.

This correlation coefficient is a parametric method and is used for data with a distributed distribution or a large number of data.

Spearman Correlation Coefficient: If a low number of data is not normal, then another correlation coefficient is used that is not based on the principal values and based on the rank of data. Since in this study some of the variables are qualitative, then we must for example, for variable such as the end of the fiscal year if the company's financial year-end is based on the solar year and zero otherwise considered to be the given value. Therefore, for quantifying qualitative change are used Spearman correlation coefficient. The relation (3-3) is computed.

\[
r_s = 1 - \frac{6\left(\sum d_i^2\right)}{n(n^2 - 1)}
\]

(2)

5.3. Meaningful meaning in solidarity:

A meaningful concept in correlation is whether the correlation obtained between two variables is a chance or indeed shows correlation between two variables. The significance of the correlation test is strongly influenced by the sample size. And, in the case of correlation tests, a significant level of 0.05.

5.4. test t:

From test t Beta coefficients calculated to predict the significance of the regression was used based on test t. If the significance level is less than 0.05, then the calculated values are statistically significant at 95% confidence level.

5.5. Test F Fisher:

Usually from the test t used when only two variables are examined; accordingly, when the effect of several variables is checked, the test t used to examine the significance of the whole model that has several variables, it must be tested F Fisher. Based on test F Fisher; if the calculated level is less than 0.05, then the results will be statistically significant at 95% confidence level.

5.6. Homogeneity of variance test:

This test is used to check the assumption of the equivalence of the variance of error sentences and dependent variables in regression models.

The statistical hypothesis defined in this test is as follows:

Equality of variance:H0

Inequality of Variance:H1
If the level of significance obtained in this test is not less than 0.05, in this case and therefore, at a confidence level of 0.95%, the assumption of the equivalence of variance for the regression models will be true.

5.7. Kolmogorov – Smirnov test

Kolmogorov -Smirnov can be used to test normal distribution of the variables.

5.8. Durbin-Watson test:

This test can be applied to determine the assumption of the lack of self-correlation of error sentences. One of the assumptions that are considered in the regression is the independence of the errors (the difference between the actual values and the predicted values by the regression equation). If the independence assumption is correct, errors are correlated with each other, there is no possibility of regression. In order to check the independence of errors, one uses the Durbin-Watson test, which is calculated using the relationship (3-4).

In this regard, disruption or impairment time and the amount of disruption or error in the previous period.

\[
DW = \frac{\sum(e_i - e_{i-1})^2}{\sum e_i^2}
\]

Relation (4-3) 2DW(1-P)

The value of the test statistic is from 0 to 4+: if this statistic is in the range of 1.5 or 2.5, the test (non-correlation between errors) is accepted otherwise, (There is a correlation between errors). (Momeni, 129, 86)

6. CONCLUSION

The main objective of this study was to answer the question whether the agency costs and audit fees related or not, so the first part of this study, after describing the expression of the problem importance and necessity of research, the research aims to provide based on the hypothesis of the study was explained. The domains of the research companies accepted in Tehran Stock Exchange and the time domain of the research were 2013, 2014, 2015 years.

In the second part, which consisted of four sections, the first issue was the nature and concept of the audit; in the second part, the representation theory was studied; in the third part, the method of pricing audit fees was presented from the scientific and theoretical standpoint, and in the fourth part of the second chapter some Studies in the country and abroad were presented in the field of research.

In the third part, the research method used to carry out the present research. For this purpose, the research was firstly determined from the target and research aspects. The statistical society and the independent and dependent variables were explained according to the main objective of the research. Then, sampling methods were described and then, for sampling and obtaining the necessary information, the method of data collection was described. Finally, to obtain scientific results, reliable methods and statistical tests were presented. In the fourth part, the assumptions of the research were tested. In order to present the initial model of the test, the traditional method of studying the pricing of audit services has been used. Based on this method, a multivariate regression model has been used to examine the effect of multiple factors on audit fees.

\[
\text{LnFee} = \alpha + \beta_1 \text{lnAss.Rev}_i + \beta_2 \text{Rec.Ass}_i + \beta_3 \text{Roa}_i + \beta_4 \text{Deb} + \beta_5 \text{Year} + \beta_6 \text{Nexe} + \beta_7 \text{SGovern} + \beta_8 \text{S.owner} + \varepsilon_i \quad (\text{model1-5})
\]

The result of the research hypothesis test shows that there is a significant relationship between the cost of representation and the audit fees of the companies accepted in the Tehran Stock Exchange for the years 85, 86 and 87, the model is as follows.

\[
\text{LnFee} = 7/19 + -0.414 + 0.319 + 0.003 \quad (\text{5-2model})
\]

Based on the results of data analysis, independent variables of the total assets and operating income, the percentage of the share of government institutions, and the proportion of the share of the first major shareholder with a dependent variable
have a direct relationship. And the independent variability of the end of the fiscal year has an inverse relationship with audit fees. The research achievements are as follows:

Based on the results of data analysis, independent variables of the total assets and operating income, the percentage of the share of government institutions, and the proportion of the share of the first major shareholder with the dependent variable, have direct relationships, and the independent variables of the end of the financial year are inversely proportional to audit fees. The research achievements are as follows:

A. General factors affecting the audit fees.

1. Variables that are statistically verified by their relationship with fee audits:

1.1. Statistical point of average total assets and operational outputs (LnAss.Rev) With the fees of the audit services (LnFee) has a direct relationship. In other words, as previous studies have shown, an increase in operating assets and operating costs, due to the increase in the volume and complexity of the operations of the unit, will increase the volume of audit work and audit fees.

1.2. From the statistical point of view of the financial year end (Year) with the fees of the audit services (LnFee) has an inverse relationship. Theoretically, the density of work of the auditors in a period of time, the first four months of the solar year, is at least very high for the final audit that must be done after the end of the financial year. Therefore auditors to reduce the density of their activities rationale seems to be that lower wages offer to audit institutions to assume that end their financial year in accordance with the end of the financial year but statistically available.

2. Variables that are not verified by their relationship with the pricing of the audit services.

2.1. From a statistical point of view, the ratio of total accounts receivable to total assets (Rev.Inv) with audit fees (LnFee) has no meaningful relationship. In some studies in the field of pricing of audit services, the ratio of total accounts receivable has been affected by the increase in the volume and complexity of the unit's operations; the right to audit, the audit fees has been affected. Based on the results of the research, the relationship between the total ratio of accounts receivable to total assets has not been confirmed.

2.2. From the statistical point of view, the profit before deduction of interest and taxes on total assets (Roa) Audit Services Audit (LnFee) has no meaningful relationship. Profit before deduction of interest and expenses on total assets as a measure of the ratio of return on investment in an economic unit. In some studies in the field of pricing of audit services due to an increase in the volume and complexity of the operations of the unit under investigation. On the basis of the results of this research, the relationship between the profit before profit and loss ratio and the total assets with the audit fees has not been confirmed.

B) Cost Indicators:

1. Variables are statistically relation to the pricing of audit services has been confirmed.

1.1. In terms of percentage share of the first major shareholder (S.Owner) with the Audit Services Fees (LnFee) has a direct relationship. In other words, the conflict of interest through direct agency costs directly affects the pricing of audit fees. The reason for this is because in the relationship between the owner and the owner, the owner plays a role as an agent of the relationship. In addition, as far as the number of owners in an agency relationship increases, the complexity of the relationship will increase.

1.2. From a statistical point of view of government institutions (S.Govern). In other words, there is a direct relationship between the manager as responsible entity agencies and public institutions increased in volume and complexity of the operation. In this way, the manager at the site of Guvessoul's response, the results of the company's activities to the state institution, seeks to present and report positive results, which in turn results in the complexity of the operation, and the increase in the complexity of the operation is one of the factors influencing audit fees.

2. Variables that statistically their relationships with pricing audit has not been confirmed.

2.1. From a statistical point of view of the total debt to total assets ratio (Deb) with audit fees (LnFee) has a meaningful relationship. Major creditors in Iran are in the form of state-owned companies or quasi-governmental companies. Also, in this company, the allocation of credit is based only on limited government decisions and decisions. Therefore, this credit can not affect the size and complexity of the
operations of the business unit and therefore do not affect audit fees.

2.2 From a statistical point The ratio of non-executive directors to the total (Nexe) With audit fees (LnFee) Has no meaningful relationship. The role of the audit committee of outside board members by means of which on behalf of the members, along with other members of the board shall be responsible for the company's performance has been reported, but unlike the members of the Board have no authority in the executive office. Therefore, ensuring the actual performance of the company for these members is of particular importance and can be a deterrent to the cost of representation as a deterrent and reduce the complexity of the unit operations. But according to the results of this study, it has not been confirmed.

REFERENCES


The Accounting Review, Vol. 74 No.2, pp. 201-16.


