The Impact of Company Size Indicators on the Audit Fee

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Abstract

Audit fees are among some of the most important concerns of audit firms, financial/statutory audit regulators and academia. The objective of this paper is to analyze and evaluate the impact of company size indicators on the formation of audit fees. Based on the data available in the "Audit Analytics" database, a sample of 27 companies listed on the Bucharest Stock Exchange was selected, for which 524 observations were reported, representing the indicators "Audit Fee", "Total Assets" and "Turnover" during 2017-2021. From the research carried out, it emerged that the turnover and total assets size indicators have a significant and positive influence on the financial audit fee. In addition, the findings indicate that "the market capitalization" indicator is not a predictive and causal variable of the value of the financial audit service.

Key words: *financial audit; audit fee; company size;*

JEL Classification: *M41, M42*

1. Introduction

The value of the service provided remains the only monetary parameter in the financial audit activity. Therefore, the analysis of the market for financial audit services through the lens of demand, supply and fee, as well as the parties involved, is mainly oriented towards the value of the service provided. This variable presents a complex process of quantification as well as correlation with the determining factors for the parties interested in this field.

Companies listed on a regulated stock market increase the credibility of financial information by having it audited by auditing firms. Among the many factors that influence the quality of the audit, the audit fee is of increased interest to the academic and private environment. Thus, the necessity of forming a reasonable pricing mechanism by studying the determining factors arises. This will not only contribute to price stability in the audit services market, but also allow the independence of certified financial auditors from clients to be maintained.

Taking into account the universality of the "Total Assets", "Turnover" and "Market Capitalization" indicators, reflecting the size of a company, the following objectives were established:

- Identifying the statistical correlations between the size indicators and the audit fee;
- Analysis of the causal relationship between total assets, turnover, stock market capitalization and the audit fee;
- Evaluation of the impact of size indicators on the value of the financial audit service.

The proposed study was developed in five sections: the first part presents the context of the research, the second section is dedicated to the review of the specialized literature existing up to the present moment, and the following two sections include the research methodology, respectively the results obtained. The final section, the fifth, highlights the conclusions resulting from the econometric analysis.

2. Specialized literature overview

In a concise, selective way, the current state of knowledge, in a national and international context, will be highlighted in what follows.

Since Simunic (1980) developed a model for determining the negotiation process of audit fees, numerous researches have appeared in the context of identifying the determinants of the fees charged for the provision of a financial audit service. Datta, Jha, and Kulchania (2019) identified a statistically significant relationship between audit fee and proportion of intangible assets. Firms with a higher proportion of intangible assets are associated with higher auditor effort and higher litigation risk for auditors, manifested in higher audit fees.

Empirical studies on the subject of audit fees have shown that both the audited characteristics and the size of the companies and the complexity of the sector have a positive influence on audit fees (Simunic, 1980; Hay, 2013; Choi et al., 2010). More recent results by Carcello et al. (2022) and Syed et al. (2020) also confirm the positive association between firm size, as measured by total assets, and the amount of audit fees charged.

Other studies (Ghadhab et al., 2019; Januarti & Mutiara, 2018) find that the main factors affecting audit fees are audit client characteristics such as firm size, risk and complexity. Habib et al. (2020) suggest that financial issues as well as intangible assets are the main elements that define the risks and complexity of the firm.

At the national level, research by Pop & Iosivan (2007) indicates that the value of external audit fees depends on the size of the audit client, the volume of turnover and the number of employees.

In addition, the emergence of increased interest from investors in the activity of companies expressed by the increase in stock market capitalization, may contribute to higher costs or audit fees (Lotfi et al., 2022). This fact is explained by the increase in the workload precisely to provide sufficient and timely information to the main users of information.

On the other hand, Gerrard et al. (1994) support the idea that while the volume of audit work is expected to increase as the size of the client increases, very large audit clients represent an opportunity for the audit firm to benefit from some savings in reducing the amount of audit work performed, and consequently being able to charge lower audit fees.

The findings of Gammal (2012) after analyzing the perception of financial auditors, accountants and internal auditors regarding the determinants of auditors' fees, claim that the value of the financial audit service is

influenced by the auditor's membership of the Big Four, while the size of the company was the littlest important.

3. Research methodology

3.1 Structure of the analyzed sample

The selection of companies included in the quantitative research was carried out at the level of companies listed on the Bucharest Stock Exchange, categories – *Standard* and *Premium*. From a total number of 80 companies, 27 were selected, eliminating the companies for which the necessary information was not identified in order to test the statistical relationship and causality over the widest possible time interval (2017 – 2021). The data on the indicators used in the research were taken from the "Audit Analytics" database and from the website of the Bucharest Stock Exchange and present a number of 524 observations.

3.2 Description of variables used

To quantify the audit fee at the level of a company, the variable – expenses regarding financial audit services was used. The selection of size indicators was based on both indicators found in Law no. 346 of July 14, 2004 regarding the stimulation of the establishment and development of small and medium-sized enterprises – the value of total assets and the value of the turnover as well as the indicator that determines the value/size of a company within a regulated stock market – the stock market capitalization.

3.3 Empirical data analysis
3.3.1 Correlation matrix

The first part of this study focuses on identifying linear correlations between the analyzed indicators. To test their existence, at the sample level, we opted for the "Correlation Analysis" statistical evaluation method.

Correlation Analysis is a statistical tool that reflects the strength of the assumed linear association between certain variables. The generated results are of a dimensional quantity that takes a value in the range -1 to +1. A correlation coefficient of zero indicates that there is no linear relationship between two continuous variables, and a correlation coefficient of -1 or +1 indicates a perfect linear

relationship. The stronger the correlation, the closer the correlation coefficient is to ±1. Relationship strength can be anywhere between -1 and +1. If the coefficient is a positive number, the variables are directly related (as the value of one variable increases, the value of the other tends to do so as well). If, on the other hand, the coefficient is a negative number, the variables are inversely related (as the value of one variable increases, the value of the other tends to decrease).

Colton (1974) suggests the following general rules for interpreting the correlation coefficient:

1. a correlation coefficient from -0.25 to 0.25 means a weak or zero correlation;

2. a correlation coefficient from 0.25 to 0.50 (or from -0.25 to -0.50) means an acceptable degree of association

3. a correlation coefficient from 0.5 to 0.75 (or from -0.5 to -0.75) means a moderate to good correlation

4. a correlation coefficient greater than 0.75 (or less than -0.75) means a very good association or correlation.

3.3.2 Granger multivariate causality test

Using the Pairwise Granger causality test allows us to check the proportion in which the current level of a variable is due to previous levels.

Granger causality between two variables is tested as follows:

• from X_0 to X_1: H_0 X_0 does not Granger cause on X_1;

• from X_1 to X_0: H_0 X_1 does not Granger cause on X_0.

The rejection of the null hypothesis ($p<0.05$) is an indication in favor of causality.

3.3.3 Fully Modified Least Squares (FMOLS)

FMOLS models are categories of multiple time series models that directly estimate the long-run effect of independent variables on dependent variables after correcting for the endogeneity problem in the time series. Thus, the application of the fully modified least squares (FMOLS) method allows us to investigate the relationship between the size indicators of companies and the audit fee.

The econometric function of the stated hypotheses used in the econometric regression is presented as follows:

$$Yt = α + β*Xt + εt,$$

where:

Yt – dependent variable – "Audit fee";

α – the coefficient of the free term;

β – the coefficient of the independent variable;

Xt – the independent variables – "Turnover", "Total Assets" and "Market Capitalization";

εt – residual error;

t – time period (2017 – 2021).

4. Results and Discussion

4.1 Statistical linear correlations

With the help of the Correlation Matrix (**Table no. 1**) in which the statistical correlations between the analyzed variables are presented, it can be seen that the variation of *the Audit Fee*:

1. It is significantly and positively influenced by 91% of the "Total Active" variation;

2. It is correlated in a moderate and positive way by 54.27% to the variation of "the turnover", respectively by 65.20% to the variation of "the market capitalization".

Table no. 1. Correlation matrix

Indicator	Audit fee	Turnover	Total Assets	Market Capitalization
Audit fee	**1**			
Turnover	**0,542767254**	**1**		
Total Assets	**0,910093785**	0,42013427	**1**	
Market Capitalization	**0,652029513**	0,65797705	0,669022701	**1**

Source: own processing, using Eviews 10

The analysis of the variations of the independent indicators shows a positive correlation coefficient. The dependent variable varies in the same way as the independent variables (when one increases, the other also increases, respectively when one decreases, the other also decreases).

4.2. Granger multivariate causality test

Based on the Pairwise Granger causality methodology, presented in **Table no. 2**, it was

checked whether the changes occurred at the level of the dependent variables are determined by the change in the audit fee. A value of less than 0.05 for the probability displayed by Eviews implies rejection of the null hypothesis. Therefore, registering a level greater than 0.05, it follows that only the indicators "Turnover" and "Total assets" are determining factors of the change in the amount of the audit fee.

Table no. 2. Results of the Pairwise Granger test

Pairwise Granger Causality Tests			
Date: 04/05/23 Time: 14:10			
Sample: 1 131			
Lags: 2			
Null Hypothesis:	Obs.	F-Statistic	Prob.
Market Capitalization does not Granger Cause *Audit fee*	131	2,7266	0,0394
Turnover does not Granger Cause *Audit fee*	131	1,2656	0,2857
Total_Assets does not Granger Cause *Audit fee*	131	2,2435	0,1104

Source: own processing, using Eviews 10

4.3. Evaluation of the impact of company size indicators on the audit fee

Analyzing the data presented in **Table no. 3**, the following conclusions can be drawn:

1. The probabilities attached to the test are below the 5% significance level; therefore, the indicators "Turnover" and "Total Assets" are considered statistically significant;

2. The correlation coefficient (R-squared), having a value of 86.43%, confirms the existence of a significant statistical link between the dependent variable – "Audit fee" and the independent variables – the indicators "Turnover" and "Total Assets", the changes in the evolution of the fee of audit found in the change of company size indicators:

- A 1% increase in turnover causes an increase in the audit fee by 4.24%;

- A 1% increase in total assets causes a 3.83% increase in the audit fee.

Table no. 3. The method of fully modified least squares (FMOLS). Regression results

Dependent Variable: Audit fee
Method: Fully Modified Least Squares
Date: 04/05/23   Time: 11:46
Sample (adjusted): 2 131
Included observations: 130 after adjustments
Cointegrating equation deterministic: C
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Market Capitalization	2,9656	1,5334	-0,1927	0,8475
Turnover	4,2414	1,4323	2,9613	0,0037
Total Assets	3,8361	3,3101	11,5891	0,0000
C	38.709,76	15.964,22	2,42	0,0167
R-squared	0,864382	*Mean dependent var*	163571,4	
Adjusted R-squared	0,861153	*S.D. dependent var*	248927,1	

Source: own processing, using Eviews 10

5. Conclusions

The obtained results support previous findings (Pop & Iosivan, 2007; Carcello et al., 2022; Syed et al., 2020; Hay, 2013; Choi et al., 2010) regarding the interdependence relationship of the audit fee and the "Turnover" and "Total Assets" indicators. This fact can be explained by the correlation of transactions and balances generated by the evolution of the indicators and the addition/decrease of the hours allocated by the team members for their testing. Thus, the variation of the workload (number of hours) depending on the turnover and total assets indicators will determine the value of the financial audit services provided.

At the same time, it is found that the size indicator – "Stock market capitalization" does not represent a predictive and causal variable of the consideration of the financial audit service.

Limitations of the research consisted of lack of information for testing a sample and extended time interval. The data and indicators were extracted and calculated manually, being taken from the "Audit Analytics" database and from the website of the Bucharest Stock Exchange.

Future research directions aim to analyze other factors, both quantitative and qualitative, that may influence the value of the audit fee.

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