CORRELATION ANALYSIS OF THE AUDIT COMMITTEE AND PROFITABILITY INDICATORS

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ABSTRACT: *The main role of corporate governance is to restore market confidence and in this process plays an important role the audit committee. The purpose of this case study is to analyze the correlations between the Audit Committee and profitability indicators. Considering the achievement of the objectives proposed in this research, our research is based on a deductive approach from general aspects to particular aspects that combines quantitative and qualitative studies. Theoretical knowledge is used for a better understanding of a phenomenon and not for making assumptions. Thus, in order to achieve our study, we selected 25 companies listed on Berlin Stock Exchange. Following this study, we concluded that the role of the audit committee is crucial.*

KEY WORDS: *audit committee, independence, professional expertise.*

JEL CLASSIFICATION: *M40, M41, M42.*

1. INTRODUCTION

The term of audit committee is closely related to scandals from United States of America - Enron, Worldcom, etc. It is considered that the financial reporting process based on audit committee of a corporation. Since their inception, audit committees have responsibilities established by law, but after Enron, audit committees increased their respective responsibilities according to the Sarbanes-Oxley Act of 2002.

The Audit committee concept was first introduced by the New York Stock Exchange (NYSE) in 1939. In the early seventies Securities Commission of the United States recommends that listed companies establish an audit committee composed of non-executive directors, and in 1979 the New York Stock Exchange listing imposed as a requirement that all members of an audit committee must be independent members.

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Ruzaidah and Takiah (2004) consider that the audit committee is one of the key elements of corporate governance structure and monitoring role in the control of management.

The main objective of the Audit Committee is to ensure transparency, to promote shareholder value maximization entity and to prevent obtaining personal benefits by managers (Wathne & Heide, 2000).

Regarding the characteristics of the Audit Committee, studies have shown that:
- ✓ Independence of the Audit Committee members is associated with decreased cases of fraud (Abbott et al., 2000)
- ✓ The number and the professional expertise of the Audit Committee are not directly related to the reduction misstated income (Abbott, et al., 2000)
- ✓ Reduced number of members, the low percentage of independence, a few meetings of the Audit Committee are potentiates of fraud at the company level (Beasley et al., 2000)

Craven and Wallace (2001) consider that an effective audit committee should focus on improving performance and competitiveness of entity. Also, Wathne and Heide's (2000) consider that the effectiveness of an audit committee is based tracking entity to maximize value for shareholders and prevent obtaining personal benefits by managers.

The practitioners suggest that audit committees are not strong enough to resolve conflicts with management. It is generally accepted that for an audit committee to be effective, a majority, if not all members should be independent (Cadbury, 1992) and should have knowledge in accounting, auditing and control (Cohen, et al. 2000, Seow & Goodwin, 2000).

2. RESEARCH METHODOLOGY

The methodology involved quantitative research methods with the purpose of classification of information, building statistical models and explain the results. For the study case we selected a sample of 25 companies listed on the stock exchange in Berlin and company annual financial reports available on their website. Based on data we calculated for each company financial indicators for 2012, which I then imported into SPSS in order to achieve empirical analysis of the impact of the Audit Committee on the performance characteristics of the entity.

To achieve that goal we have chosen a sample of 25 companies listed on the main stock index in Berlin. Thus we selected the top 25 in terms of the entity of the market value of the shares.

For each entity, we extract information on the audit committee and financial indicators to study a possible correlation between them.

The characteristics of the Audit Committee included in the analysis are:
- ✓ Number of members
- ✓ Structure of the Audit Committee
- ✓ Number of meetings
- ✓ Professional Experience
- ✓ Independence of Audit Committee

✓ Position of the Audit Committee
On that basis of these elements we formulated the six hypotheses:

H1: The number of members of the Audit Committee does not influence the performance of the entity, the alternative that the members of the Audit Committee influence the performance of the entity.

H2 : The structure of the Audit Committee does not influence the performance of the entity, the alternative that the structure influences the performance of the entity's audit committee.

H3 : The number of meetings does not affect the performance of the entity, the alternative that the number of meetings influence the performance of the entity.

H4 : The professional experience of the members of the Audit Committee does not influence the performance of the entity, the alternative that the level of experience influences the performance of the entity.

H5 : The independence of the Audit Committee does not influence the performance of the entity, the alternative audit committee independence affects the entity's performance.

H6 : Position Audit Committee within the entity does not influence its performance with an alternative that has an influence on the entity's performance

3. THE STUDY RESULTS

Thus, by analyzing all the variables in a regression we obtained the following results:

Table 1. ANOVA statistical test - dependent variable ROA
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.020	5	.005	1.792	.163[b]
	Resiudal	.038	19	.003		
	Total	.056	24			

Source: Author's projection with SPSS
  a. *Dependent Variable ROA*
  b. *Predicators:(Constant), Independence, Structure , Nr_meetings , Prof_ Exp , Nr_members*

Analyzing the Sig (from Table ANOVA) corresponding to this regression, we notice that it is greater than 0.1, then the linear relationship between variables is not considered significant. Therefore, the general form of the model is not appropriate and we have to eliminate some variables. By analyzing the Correlations table will eliminate variables whose significance exceeds the permissible Sig: Structure, Nr_meetings, Prof_ Exp and Position.

Table 2. Correlations between variables - dependent variable ROA
Correlations

		ROA	Nr_members	Structure	Nr_meetings	Prof_Exp	Indepen-dence	Position
Pearson Correlation	ROA	1.000	-.297	.230	-.297	-.096	.441	
	Nr_members	-.297	1.000	-.198	.331	.026	-.396	
	Structure	.230	-.198	1.000	-.296	-.193	.028	
	Nr_meetings	-.297	.331	-.296	1.000	.075	-.163	
	Prof_Exp	-.096	.026	-.193	.075	1.000	.420	
	Independence	.441	-.396	-.028	-.163	.420	1.000	
	Position							1.000
Sig.(1-tailed)	ROA		.076	.137	.135	.324	.014	.000
	Nr_members	.076		.172	.053	.451	.025	.000
	Structure	.137	.172		.075	.177	.447	.000
	Nr_meetings	.135	.053	.075		.360	.216	.000
	Prof_Exp	.324	.451	.177	.360		.020	.000
	Independence	.014	.025	.447	.216	.020		.000
	Position	.000	.000	.000	.000	.000	.000	

Source: Author's projection with SPSS

Conclusively, we have accepted hypothesis H2, H3, H4 and H6 respectively the fact that these factors do not influence the dependent variable of ROA.

By building a regression with the remaining variables we obtain the following results:

Table 3. ANOVA statistical test - dependent variable ROA
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.012	2	.007	2.980	.072[b]
	Resiudal	.044	22	.003		
	Total	.056	24			

Source: Author's projection with SPSS
  a. *Dependent Variable ROA*
  b. *Predicators: (Constant), Independence, Nr_members*

The final regression formula is:

$$ROA = \alpha 0 + \alpha 1 Nr\_members + \alpha 5 Independencea$$

The value of F, 2980, has tested the global significance of the independent variables. Sig value of the ANOVA model is 0.072, which is less than the chosen significance threshold of 0.1. Therefore the linear relationship between the variables analyzed is significant. Following our analysis we can say that we reject the hypothesis

H1, H5, and therefore we accept their alternatives, namely that Nr_members Independence of Audit Committee and members influence ROA (performance entity).

From Table Descriptive Statistics we estimate that, in average, the companies selected have four members of the Audit Committee and the percentage of independence is 25.66%.

Table 4. The descriptive statistics - dependent variable ROA
Descriptive Statistics

	Mean	Std.Deviation	N
ROA	.06104	.048378	25
Nr_members	4.32	1.108	25
Independence	.25664	.163272	25

Source: Author's projection with SPSS

From the Table of Correlations by Pearson's coefficient analysis we observed that the members of the Audit Committee Independence is directly correlated with ROA, suggesting that an increase of the number of independent members on the committee will determine an increase in the ROA and vice versa. Regarding to relationship between the members of the Audit Committee and ROA it is an indirect one. Sig-sized amount of variables considered in the model falls within the established materiality.

Table 5. Correlations between variables - dependent variable ROA
Correlations

		ROA	Nr_members	Independence
Pearson Correlation	ROA	1.000	-.297	.441
	Nr_members	-.297	1.000	-.396
	Independence	.441	-.396	1.000
Sig.(1-tailed)	ROA		.073	.014
	Nr_members	.073		.025
	Independence	.014	.025	
N	ROA	25	25	25
	Nr_members	25	25	25
	Independence	25	25	25

Source: Author's projection with SPSS

The Summary shows the linear regression correlation coefficient R, the coefficient of determination R2, standard error, and Durbin-Watson.

The value of R indicates whether there is or not a correlation between the dependent variable (ROA) variables Independence (Nr_members and Independence). This indicator can range between -1 and 1. In this case, it resulted in a value of 0.462. Independence variables of this regression explained variance in the proportion of 21.30% ROA, as indicating the value of R2. Therefore we consider that there are low correlation between ROA and Independence variables. With Durbin-Watson test check if residues are Independence or not. Analyzing the Durbin-Watson statistic obtained, DW = 2.050, we see that is greater than the upper limit of theoretical statistics DW =

1.864 (for a threshold of 0.1 and N = 25) and we can say that the residues are not correlated.

Table 6. Model Summary - dependent variable ROA
Model Summary[b]

Model	R	R Square	Ajusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.462[a]	.213	.142	.044821	.213	2.980	2	22	.072	2.050

Source: Author's projection with SPSS
    a.   *Predictors: (Constant), Independencea, Nr_members*
    b.   *Dependent Variable: ROA*

Table 7. Coefficients situation - dependent variable ROA
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval of B		Correlations		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1 (Constant)	.060	.048		1.240	.228	-.023	.142			
Nr_members	-.007	.009	-.147	-.715	.428	-.022	.009	-.297	-.151	-.135
Independencea	.114	.061	.383	1.861	.076	.009	.218	.441	.369	.352

Source: Author's projection with SPSS
    a.   *Dependent Variable ROA*

The Coefficients table contains information on the coefficients:
column B - coefficient,
Std. Error - standard error of the coefficient (standard deviation random distribution coefficient),
Beta - standardized coefficient (shown with one standard deviation change ROA if Independence variables change one standard deviation),
t - statistic test of significance of the coefficient,
Sig. - Critical probability test.

Therefore, a coefficient is significant (non-zero in the regression equation) where Sig <0.1. In our case the most significant coefficient is found for the variable Independence, resulting in that the degree of independence of Audit Committee members influence the utmost ROA. From coefficients table result the linear regression:

$$ROA = 0,060 - 0,006 * Nr\_members + 0,114 * Independence$$

Applying the same methodology as in the above case, we will analyze the influence of the Audit Committee on ROE.

Sig's value of this regression is higher than materiality determined, it is not representative. Therefore, we eliminate variables whose sig exceeds permissible level of significance (Prof_ Exp, Independence and position) and we accept hypotheses H4, H5 and H6.

Table 8. Correlations between variables - dependent variable ROE
Correlations

		ROE	Nr_ members	Structure	Nr_ meetings	Prof_ Exp	Indepen- dence	Position
Pearson Correlation	ROE	1.000	-.323	.377	-.372	-.132	.194	
	Nr_members	-.323	1.000	-.198	.331	.026	-.396	
	Structure	.377	-.198	1.000	-.296	-.193	.028	
	Nr_meetings	-.372	.331	-.296	1.000	.075	-.163	
	Prof_ Exp	-.132	.026	-.193	.075	1.000	.420	
	Independence	.194	-.396	-.028	-.163	.420	1.000	
	Position							1.000
Sig.(1-tailed)	ROA		.058	.032	.033	.265	.176	.000
	Nr_members	.058		.172	.053	.451	.025	.000
	Structure	.032	.172		.075	.177	.447	.000
	Nr_meetings	.033	.053	.075		.360	.216	.000
	Prof_ Exp	.265	.451	.177	.360		.020	.000
	Independence	.176	.025	.447	.216	.020		.000
	Position	.000	.000	.000	.000	.000	.000	

Source: Author's projection with SPSS

Table 9. ANOVA statistical test - dependent variable ROE
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	5	.000	1.387	.273[b]
	Resiudal	.000	19	.000		
	Total	.000	24			

Source: Author's projection with SPSS
     a. *Dependent Variable ROE*
     b. *Predicators:(Constant), Independence, Structure , Nr_meetings , Prof_ Exp , Nr_members*

Building a regression with the remaining variables we obtain the following results:

Table 10. ANOVA statistical test - dependent variable ROE
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	3	.000	2.327	.104[b]
	Resiudal	.000	21	.000		
	Total	.000	24			

Source: Author's projection with SPSS
     a. *Dependent Variable ROA*
     b. *Predicators:(Constant), Independence, Structure , Nr_members*

Because the Sig model (0.104) exceeds materiality especially Nr_members we remove the variable (because it has the highest value of Sig's).

Thus we accept the hypothesis H1, that the number of members of the Audit Committee does not influence the performance of the entity represented by ROE.

Form of the regression model becomes:

$$ROE = \alpha 0 + \alpha 2 \text{ Structure } + \alpha 3 \text{ Nr\_meetings}$$

Table 11. ANOVA statistical test - dependent variable ROE
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	2	.000	3.039	.068[b]
	Resiudal	.000	22	.000		
	Total	.000	24			

Source: Author's projection with SPSS
    a.   Dependent Variable ROE
    b.   Predictors:(Constant), Nr_meetings , Structure

From the table we can appreciate that Statistics Descriptive average Audit Committee analyzed a structure composed 67.60% of non-executive directors and an average of four meetings per year.

Table 12. Descriptive Statistics - dependent variable ROE
Descriptive Statistics

	Mean	Std.Deviation	N
ROE	.00312	.003609	25
Structure	.67604	.191537	25
Fec_sedinte	4.36	1.150	25

Source: Author's projection with SPSS

From the table of Correlations by Pearson's coefficient analysis we observed that the structure of the Audit Committee is directly correlated to ROE, suggesting that an increase of non-executive members of the Committee will determine an increase in the ROE, and vice versa. Regarding to relationship between the frequency of meetings of the Audit Committee and ROE this is an indirect one. Sig-sized amount of variables considered in the model falls within the established materiality.

In the Model Summary we study the value of R2, which indicates that only 21.6% of the variance is explained by variables ROE Independence of this regression. I therefore consider that between ROE and Independence variables are low correlation.

The information related to coefficients can be found in the table below. In our case, the frequency of meetings of the Audit Committee utmost influence ROE. From the table of coefficients can write the linear regression:

$$ROA= 0,002+0,006*Structure -0,001*Nr\_meetings$$

Table 13. Model Summary - dependent variable ROE
Model Summary[b]

Model	R	R Square	Ajusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.465[a]	.216	.145	.003337	.216	3.039	2	22	.068	1.599

Source: Author's projection with SPSS
   a.   *Predictors: (Constant), Nr_meetings , Structure*
   b.   *Dependent Variable: ROE*

Table 14. Situation coefficients - dependent variable ROE
Coefficients [a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval of B		Correlations		
	B	Std.Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1 (Constant)	.003	.005		549	.594	-.005	.010			
Structure	.007	.005	.292	1.480	.153	-.001	.012	.377	.301	.279
Nr_meetings	-.001	.001	-.285	-1.445	.163	.003	.000	.372	-.294	-.273

Source: Author's projection with SPSS
   a.   *Dependent Variable ROE*

4. CONCLUSIONS

Both during the crisis and post-crisis period, it has been demonstrated the importance of effective audit committee. The interaction of the Audit Committee with other functions of the entity and external factors are significant. In the profitability indicators, we identified correlations between the number of members, Structure, Independence and number of meetings of the members of the Audit Committee.

In conclusion, the Audit Committee's contribution to the efficiency and effectiveness of company is indisputable, as long as the basic principle in its organization (the members of the Audit Committee, adequate experience in financial accounting and auditing, Audit Committee members, structure represented by percentage of non-executive). The Audit Committee represents the interests of shareholders and ensures that activities related to financial reporting, internal control and audit (internal and external) are done according to their interests.

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