AN ECONOMETRICAL ANALYSIS OF THE AUDITING COMPANY'S SIZE AS AN INDICATOR OF MATERIALITY

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Abstract

This paper reports interview evidence on audit materiality and the answers to the variables regarding the size of the companies,which is audited and the size of auditing company. Significant findings from the research interviews are Focus-Groups Questionnaires as a Method of Collecting Qualitative Data, in our case the group being the 215 CPA from IEKA, Albania.We want to bring out the Albanian auditor characteristic in professional judgment, that is depended in the size of the society who audited or in the size of auditing society, and this audit work we see the experience versus calculative methods. Risks and experience are the methods that Albanian CPAs choose to determine the materiality. The result of the study can have significant implication for IEKA and the Quality Audit Control which takes place once every five years for the experts on the field and for the young experts, it takes place once every two years. The young experts use professional judgment more than personal judgment.

Keywords: Materiality; Risks; Professional judgment**;** Size

Introduction:

Materiality is considered as a key concept in the theory and practice of accounting and auditing. It is a significant factor in the planning of the audit procedures, performing the planned audit procedures, evaluating the results of the audit procedures and issuing an audit report

(International Standards on Auditing, ISA 320, Statement of Auditing Standards, SAS 107; AU 312).

The American Institute of Certifies Public Accountants (AICPA) and the International Auditing and Assurance Standards Board (IAASB) pointed out that the auditor's determination of materiality is a matter of professional judgment (ISA 320, 4, SAS No. 108; AU No.312, 4). Empirical studies in materiality area started in the early 1950s. However, materiality continues to be a topic of significance for researchers.

During the late 1970's, regulators and small audit firms believed that the size of the audit firm did not affect audit quality. There is some criticism that the large accounting firms should not be arbitrarily distinguished from all the other CPA[127] firms. De Angelo[128] argues that consumers *can* use size as a measure of audit quality. De Angelo defines quality of audit services as "the market-assessed joint probability that the given auditor will *both* discover a breach in the client's accounting system *and* report the breach."

Although applying audit materiality is important in both planning and audit processes, we believed that problem is not related to the level of materiality used to plan the scope of audits. The problem comes with the application of appropriate audit judgment to the evaluation of the significance of detected misstatements.

Gray, Owen and Maunders[129] add that professional judgement is made throughout the audit:

It begins when the [audit] firm decides to accept an appointment as auditors; and continues through the analytical review, the assessment of audit risk, the determination of levels of materiality, the areas of the company's activities on which to concentrate, the size of samples, the form of evidence to be sought, the decision to accept or not the directors' choice of accounting treatment and disclosure and culminates

[127] Certified Public Accountants

[128] DeAngelo, Auditor size and audit quality, Journal of Accounting and Economics 3 (1981),183-199,North-Holland Publishing Company.

[129] Gray, R., Owen, D., & Maunders, K. (1991). Accountability, corporate social reporting
and the external social audits. *Advances in Public Interest Accounting*, *4*,139.

in the conclusions of whether or not the financial statements do show a true and fair view and whether or not to sign off a clean audit report.

Iskandar[130] states that while many professional judgements are made during the audit, the decision on 'audit materiality' is the most fundamental.

It is known about actual differences which may exist between Big 4 and non-Big 4 firms' audit processes and procedures. They argue that Big 4 and non-Big 4 audit firms fundamentally differ with respect to their investment strategies in audit technology[131], with Big 4 audit firms choosing to invest more in audit technology as a differentiation strategy to enhance the relative value of their audits through greater audit quality, real and/or perceived, and/or audit production efficiency gains.

However it does not show that the work of single CPA is below that of the Big, and this has been seen these last years. Financial scandals, such as Enron, WorldCom, Tyco-International, and their auditors, for example; Arthur Andersen, clearly show that big led these scandals into becoming unavoidable.

RESEARCH HYPOTHESES, DATA AND METHODOLOGY

Our study was structured upon Focus-Groups Questionnaires as a Method of Collecting Qualitative Data[132] , in our case the group being the 215 CPA from IEKA [133] , Albania. We have designed questionnaires regarding audit judgment based on materiality; risk assessment (professional judgment) or experience (personal judgment) they have as auditors; the years passed as auditors in a society are described as experience in auditing.

The operationalization is structured in two distinct areas: the theory world (concepts area) and study world (variables area)[134]. In the theory world

[130] Iskandar, T. M. (1996). Industry type: A factor in materiality judgements and risk assessments. *Managerial Auditing Journal*, *11*(3), 4-11.

[131] Sirois, L.-P., and D. A. Simunic. 2010. Auditor Size and Audit Quality Revisited: The
Importance of Audit Technology. Working paper, HEC Montréal and University of British Columbia.

[132] Yin, Robert . Qualitative Research, 2011,page 141

[133] Authorized Accountant Experts Institute, Albania (IEKA)

[134] Yin, Robert. Qualitative Research, 2011, page 77-96

takes place an abstract analysis of the concept and its relation to other concepts. In order to do this, it is often helpful reviewing the literature of the field of study and an analysis of the researcher based on his/her experience. When we talk about relation between concepts we make reference to the logical relation between them, which leads to the orientation between concepts and also to the direction of the relation itself. The causality direction divides factors into: causal one and the ones that are affected, while the direction of the relation has to do with the positive or negative report between them. We will notice an arrow emerging from the independent factors toward the dependent ones: from causes to the consequences.

Hypothesis: "The calculation of materiality depends on the size of the audited company ?"

llog_matr = f (*madh, gjin, mosh, pj_aud)*

$$P(l\log\_matr_{0;1}) = \frac{1}{1+e^{-(\beta_0+\beta_1 madh+\beta_2 mosh+\beta_3 gjin)}}$$

The wording of this hypothesis leads to the determination of the cause, which is the size of the company being audited, and of the effect, which is the basis of the materiality's computation. Similarly, from the hypothesis can be determined the dependent and independent variable.

The basis of calculating the materiality for the accounting experts is the 'effect' concept which is measured by the ways of materiality computation, which are three: the experience, the calculation and the combination of both methods. The three attributes of this variable also determine the encoding of data 1, 2 and 3, respectively for the experience, the calculation and both ways. The symbol of this variable is llog_matr.

In respect of the hypothesis, the size of the audited company is included in the analysis as a result concept, which is measured by a dummy variable, where 0 means No response and 1 means a Yes response. Gender (gjin), age (mosh), participation in consecutive audits (pj_aud) and size (madh) are concepts accompanied by the same unit measurements and symbols.

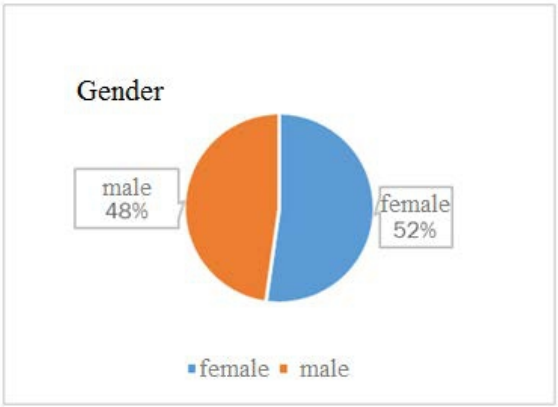
The general functional form required to be evaluated is:

llog_matr = f (*madh, gjin, mosh, pj_aud*).

As an often occurrence in the world of studies and questionnaires, a hypothesis cannot be controlled only with one independent and one dependent variable. This type of relation is considered as an extreme simplification of reality. To better control the possible effects of other factors, it seems reasonable to integrate into the analysis other factors, which address adequately the potential effects that may arise in different directions. This is precisely the reason why we integrated other variables in the above mentioned functional form.

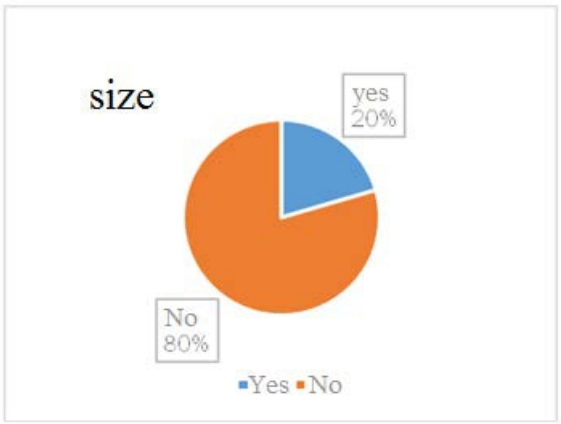
A. Graphic presentation of categorical variables

The below graphics present more clearly the nature and composition of the variables. Gender is composed by: 48% men and 52% women. We are dealing here with a nearly equal distribution: 50 to 50.



Graphic no. 1. Graphic presentation of the variables gjin (gender)

The answers to the variables regarding the size of the companies being audited (*madh*) are illustrated in the following charts. Only 20% of the respondents said that the materiality calculation depends on the company's size, while the rest of them denied this. Nearly a quarter of the respondents said that experience is the basis for materiality calculation, 28% of them said that the basis for the materiality assessment is calculation, while the remaining 48% said that the basis for materiality assessment are both techniques, which means a combination of them.



Graphic no.2. Graphic presentation of the variables madh

RESULTS

Use of the common software previously mentioned can help at this stage.[135] Multinomial execution of logistic regression through SPSS software follows a slightly different procedure from the execution of ordinary logistic regression, resulting in the reported statistics to be slightly different.

The table in Annex provides estimates for the coefficients of the variables for calculating materiality model. Even here, as the model of materiality judgment, the table is divided into two halves. This comes as a result of comparing the coefficients according to the categories of the dependent variable, which is llog_matr. The categories are ways of calculating the materiality: *Experience*, *Calculation* and *Both*. Here is specified the category *Both* as the reference category. The top half of the table is labeled *Experience* and compares this category with category *Both*. Let's see the effect one by one, as we compare two categories. The interpretation resembles the binary logistic regression:

- *Intercept*: this ratio does not take any relevance in interpreting multinomial logistic model. It is statistically significant, as $p < 0.05$.
- *pj_aud (participation)*: Positive sign coefficient (2.319) shows that the growth of consecutive auditions is more likely to use *Experience* as a way of calculating the materiality rather than *Both*. This statement is statistically true over the 95% level of security, because the probability coefficient is 0.003 ($p < 0.05$ level). Opportunities

[135] Yin, Robert. Qualitative Research, 2011, page 184.

report is 10.165 and shows that, when pj_aud passes from category 1 to 2 or from 2 to 3, then the risk of selecting the method based on *Experience* changes with 10,165 versus the category of *Both* methods.

- *Mosh (age)*: positive sign of the age coefficient shows that with increasing age of auditors is more likely that auditors rely on experience as a way of calculating the materiality rather than use Both methods simultaneously. This variable turns out not to be important for determining the calculation of materiality, as long as the corresponding probability is 0364 ($p < 0.05$). For this reason are not interpreted the opportunities report and the border of its movement.
- *Madh (size)*: the size of the company audited by the auditors is the variable of interest for our hypothesis. A positive sign coefficient indicates that the company being audited is great (big), then the odds are that the auditor will not use *Experience* as a way to calculate how materiality, rather than *Both* ways. This variable is important for 90% security level, since the probability is 0.078. When *big* variable varies from 0 to 1, the relative risk of selecting *Experience* changes with 4603 against *Both*.
- *Gjin (gender)*: is interpreted as a trial model of materiality judgment. Accounting experts who are men are more predisposed to choose *Experience* as a way of calculating the materiality rather than using *Both* ways. Gender is important for determining the calculation of materiality, since the appropriate probability is 0.039 ($p < 0.05$ level).
- *gjin*pj_aud(gender*participation)*: this is a combined variable between the gender of the auditors and their participation in audits. When gender is female, coefficient -1859 becomes zero, and when the gender is male, this coefficient is multiplied by the value of pj_aud. This variables combination is important probably 95% for determining the materiality calculation, because the probability is 0.04 ($p < 0.05$). Men who participate several times in consecutive audits are less likely to use *Experience* as a way of calculating the materiality, because the sign of the coefficient is negative.

As it was made the analysis for the category *Experience* and *Both* of the calculation of materiality, it will be presented the analysis for the category *Calculation* and *Both*. The second pair of categories (*Experience*

and *Both*) takes place in the second half of the table above. It is interpreted as follows:

- *Intercept*: it does not take any significance in interpreting multinomial logistic model. Unlike category *Experience*, it is statistically insignificant, as p >0.05.
- *pj_aud(participation)*: positive sign coefficient continues to be preserved for this couple category too, only the value of the effect has decreased compared with the upper half of the table (from 2.319 to 0.62). Also, this variable does not show any significant difference between the *Calculation* of materiality and the use of *Both* ways, because the corresponding probability is greater than 10% (0.111).
- *mosh (gender)*: negative sign near the variable age (-0.15) shows that with the increasing age of auditors is less likely that the auditors rely on Calculations as a way of calculating the materiality rather than use Both methods simultaneously. This variable turns out not to be important in determining the materiality calculation for the corresponding probability is 0.609 (p<0.05). The difference between the categories is the sign of the coefficient and its value.
- *Madh(size)*: the size of the audited company certainty 95% is an important variable to calculate the materiality because its probability is 0.038. A positive sign of the coefficient indicates that when the company being audited is great (big), then the chances increase that the accounting expert use *Calculation* as a mean of calculating the materiality rather than *Both* ways. When *big* variable varies from 0 to 1, the relative risk of choosing the method of Calculation changes with 3.676 against *Both* ways. So, in both cases this variable is important for determining materiality calculation.
- *Gjin(gender)*: this variable carries about the same interpretation in the upper half of the table, except the fact its effect is a little dim. Women experts have fewer chances to choose *Calculation* as a way of calculating the materiality rather than *Both* ways. Gender is important for determining the calculation of materiality, since the appropriate probability is 0.009 (p <0.05).
- *gjin*pj_aud(gender*participation)*: This is a combined variable between auditors' gender and their participation in consecutive audits. When gender is female, coefficient -1.506 becomes zero, because the female gender is coded 0, and when the gender is male,

then this value is multiplied by the coefficient of pj_aud. This combination of variables remains important, even with a greater certainty than in the upper half of the table, so with a certainty of 99% for determining of the materiality calculation, because the probability is 0.006 ($p < 0.01$). Male experts, who participate many times in consecutive audits, are less likely to use *Calculation* as a way of calculating the materiality compared to *Both* ways, as the sign of the coefficient is negative.

CONCLUSION

- Our application has identified the existence of a strong correlation between the professional judgment and the first years of work in the profession as an auditor. Risks and experience are the methods that Albanian CPAs choose to determine the materiality. The result of the study can have significant implication for IEKA and the Quality Audit Control which takes place once every five years for the experts on the field. For the young experts, it takes place once every two years. The young experts use professional judgment more than personal judgment.
- This connection is obvious, especially in CPA who work in audit firms, who by experience of these firms (Big), who use a strict protocol with regard to audit planning and the procedures for calculation of risk and materiality, make a new mentality even for the Albanian CPA, it should serve not only in IEKA's training but even in the necessity of drafting of a working file model - since most auditors are individuals - and it will help the work of every CPA to be subjected to a strict protocol according to this model file, and will enhance the effectiveness of the auditor's work, giving a priority to the Calculations and Tests against Experience.
- Also one thing that is noticed is that the women CPAs are a little more careful than men CPAs because they do a rotation, like Experience and Tests. This leads IEKA to reflect in quality control to be given a bigger place to the control at the men CPA.
- Obviously the young experts and experts who work in big companies tend to use Tests estimated in Risk and Materiality rather than Experience.

Annex

Table 1.Overview of the results of the base materiality calculation's model, product of SPSS 20

Warnings

There are 171 (60.0%) cells (i.e., dependent variable levels by subpopulations) with zero frequencies.

Case Processing Summary

		N	Marginal Percentage
llog_mat	*Experience*	32	24.2%
	Calculation	37	28.0%
	Both	63	47.7%
Valid		132	100.0%
Missing		0	
Total		132	
Subpopulation		95[a]	

a. The dependent variable has only one value observed in 76 (80.0%) subpopulations.

Step Summary

Model	Action	Effect(s)	Model Fitting Criteria			Effect Selection Tests		
			AIC	BIC	-2 Log Likelihood	Chi-Square[a]	df	Sig.
0	Entered	*Intercept, pj_aud, mosh, madh, gjin*	230.988	259.816	210.988	.		
1	Entered	*gjin * pj_aud*	224.206	258.799	200.206	10.782	2	.005

Stepwise Method: Forward Entry

a. The chi-square for entry is based on the likelihood ratio test.

Model Fitting Information

Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	248.632	254.398	244.632			
Final	224.206	258.799	200.206	44.426	10	.000

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	174.628	178	.557
Deviance	172.219	178	.608

Pseudo R-Square

Cox and Snell	.286
Nagelkerke	.325
McFadden	.160

Likelihood Ratio Tests

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	239.965	268.793	219.965	19.759	2	.000
pj_aud	235.442	264.270	215.442	15.236	2	.000
Mosh	221.765	250.593	201.765	1.559	2	.459
Madh	226.967	255.795	206.967	6.761	2	.034
Gjin	230.787	259.615	210.787	10.581	2	.005
*gjin * pj_aud*	230.988	259.816	210.988	10.782	2	.005

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Parameter Estimates

llog_matr[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Eksperienca	*Intercept*	-9.523	2.767	11.846	1	.001			
	pj_aud	2.319	.789	8.636	1	.003	10.165	2.165	47.726
	mosh	.032	.035	.825	1	.364	1.032	.964	1.106
	madh	1.527	.865	3.116	1	.078	4.603	.845	25.076
	Gjin	5.108	2.480	4.243	1	.039	165.285	1.281	21322.477
	*gjin * pj_aud*	-1.859	.906	4.214	1	.040	.156	.026	.919
Llogaritja	*Intercept*	-2.087	1.380	2.286	1	.131			
	pj_aud	.620	.390	2.534	1	.111	1.860	.866	3.993
	mosh	-.015	.029	.262	1	.609	.985	.930	1.044
	madh	1.302	.629	4.283	1	.038	3.676	1.071	12.616
	Gjin	3.039	1.159	6.876	1	.009	20.890	2.155	202.537
	*gjin * pj_aud*	-1.506	.544	7.663	1	.006	.222	.076	.644

a. The reference category is: *both.*

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