

## **The Quality of Audit Process: An Empirical Study with Audit Committees**

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### **ABSTRACT**

The recent financial scandals (Enron in the USA, Batam in Tunisia) showed the inability of classic approaches and their measure indicators to estimate the relevance of audit works. We consider that the audit quality control must reside at the level of audit process. This position is adopted by the financial security law in Tunisia which encourages the evaluation of the audit quality, by the audit committee.

The objective of this paper is the construction of measurement scales of the audit process quality for audit committees or for other governance organ concerned with the audit quality. The conception and the validation of this measurement scales were done on the Tunisian ground by adopting Churchill approach. Articulating qualitative phases and quantitative phases based on two research questionnaires, this approach developed a scale of 27 quality indicators distributed on three stages of the process.

*JEL Classification:* M42

*Keywords:* Audit quality; Audit process; Audit committee; Churchill approach

## I. INTRODUCTION

Audit constitutes a solution information asymmetry problem between the leaders and the shareholders or between the leaders and the other third contracting parties. As a mechanism of governance, it has for main role to reduce agency costs and to reassure the shareholders and third party contractors concerning the reliability of the financial information communicated. Nevertheless, the quality of audit is not uniform and especially not directly apparent. The audit process is very complex and hardly observable by third parties and the audit report (the result of an audit) is so standardised in its content and format that it offers a only few possibilities for differentiation (Wooten, 2003). Generally, a higher quality audit is reliant, as part of its mandate, on an ability to reduce existing anomalies and failures. However, the majority of studies on audit quality were contented to extrapolate the “audit quality” by the “auditor quality” (De Angelo, 1981a; Citron and Taffler, 1992; Carcello et al., 1992). The audit quality approach is therefore determined by the auditor's ability, as much intellectually as through resources, to detect potential inadequacies in the audit system (detection quality) and to give an account of the “discoveries” highlighted during that work (discovery quality)<sup>1</sup>. Because of the difficulties in observing the audit process, the majority of studies concentrate on the research of substitutes for audit quality using an indirect evaluation approach. These substitutes being perceived by the market as related to the intrinsic characteristics of these two concepts (Venkataraman, R and al; 2008; Krishnan and Schauer, 2000; Kaplan, 1995).

There are several limitations to this “indirect” evaluation approach. Many researchers have emphasised the presence of failures which are both conceptual such as the risk of adverse selection (Watts et Zimmerman, 1981; Behn et al, 1997) and empirical with simplistic measuring criteria giving rise to contradictory results. Recent financial scandals (especially the Enron affair) and the collapse of the accountancy firm Arthur Andersen<sup>2</sup> have confirmed the inadequacy of this indirect evaluation approach in comprehending audit quality. For example, Krishnan (2003) confirms that Big Four Proxies cannot explain the Enron Affair. He demonstrate that audit partners at the Andersen Houston office tolerated more aggressive accounting practices by their clients and were reluctant to prevail on them to report bad news in a timely fashion.

In Tunisia, we assisted with (in 2002) the equivalent to the Enron case. It involved the collapse of the Batam Company<sup>3</sup>. This company caused a crisis of confidence on the Tunisian financial market by affecting the reliability of financial information and audit quality. These scandals have shattered the concept and audit quality measurement which until then was based on indicators exogenous to the audit process.

All of these reports reinforce the need, with practitioners as well as academics, to redefine the audit evaluation rules. Following the example of the SOX law in the USA a new financial security law have been adopted in 2005 in Tunisia. This law requires all listed companies to appoint an audit committee and encourages this committee to monitor the quality of the external audit.

After some years of application of this law, it is important to identify and to understand the indicators used by the audit committees to estimate audit quality. The object of this research was to conceive and to propose, for the audit committees, a measurement scale of the audit quality process.

Based on a Churchill's methodology, our study allowed the identification of 27 items grouped in three main stages. The 27 identified items constitute the base of an evaluation of the audit process quality for audit committees. Further to several statistical analyses these items were summarized in 7 key quality indicators of the audit process. These last ones are linked to the technical audit process, but also to the auditor quality and to the organizational characteristics of audit firms. This article includes four parts. In Section II, we present a literature review on audit quality. In Section III, we expose the empirical step of the search (III). We analyze the results in Section IV. Finally, we present the discussing and the conclusion of our research.

## **II. AUDIT QUALITY MEASUREMENT INDICATORS**

Audit quality was defined by DeAngelo (1981) as "the assessment by the market of the combined probability that an auditor will simultaneously discover an anomaly or significant irregularity in the client company's accounting system and publish this anomaly or irregularity". Many researchers (Knapp, 1991; Flint, 1988; Moizer, 1997) selected this double approach to define audit quality by distinguishing the auditor's technical competence (detection quality) and independence (revelation quality). Several researchers (Krishnan and Schauer, 2000; Kaplan, 1995; and Lennox, 1999) used this definition of audit quality to identify substitutes of audit quality perceived by the market or linked to the intrinsic characteristics of these two concepts (auditor competence and independence). Several indicators of audit quality have been identified by literature such as the size (Beck et al, 1998), fees (David et al, 2006; Reynolds et al. 200, Chee-Yeow L and Hun-Tong T., 2008) and reputation of the auditor (McNair, 1991; Carey and Simnett, 2006), industry specialisation (Solomon and al. 1999, Krishnan 2003), Litigation experience (Plamrose, 1988).

However, the majority of these works were dedicated to the analysis of the "quality of the auditor" as an approximation of audit quality rather than the analysis of the audit process itself. Very few studies are dedicated to evaluating quality using the audit process. Initial studies concerned with the process were focused on a better understanding of the environment of subjective audit decisions. These studies examined the different stages of the audit process by observing the factors affecting audit quality and the different measurements which could be attributed to them (Gibbins and Walf, 1982, Sutton, 1993, Manita 2008). Nevertheless, if the analysis of the audit process has been used to evaluate the audit process for audit firms, it has not been used to develop quality indicators to help audit committee member directors. These directors do not have the same perception of audit process quality as auditors.

## **III. THE CONSTRUCTION OF THE MULTI- ITEMS MEASURE SCALE**

The study was conducted in Tunisia with audit committees and administrators of listed companies to the Tunis stock exchange. The interviews and questionnaires were administered between 2007 and 2008. Banks's and insurances's audit committees were spread given the specificities of these two sectors. The implementation of an evaluation approach of audit quality requires the conception of an empirical methodology to verify the reliability and the validity of the measure scales. Except the works of Sutton (1993),

Chemangui (2009) and Manita (2008), no research is interested to the development of a multi-items measure able to arrest the various facets of audit process. The studies are limited to the identification, based on the literature or expert's opinion, the list of quality attributes and their validation by questionnaires (Behn and Al, on 1997; Carcello and Al, on 1992). For the construction of the measurement scale of the audit process quality, we have adopted, following the example of Manita (2008) and Chemangui (2009) a Churchill's approach (1979) by considering Roehrich advice (1993). Our methodological step, based on Churchill's approach, can be so summarized over 5 stages.

#### **A. The Qualitative Study with the Audit Committee Members**

The objective of this stage was to identify the quality attributes of the audit process and to prepare the questionnaire for the administrators. From the list of quoted companies to Tunis stock exchange, we spread banks and insurances and we identified a list of 22 companies which have an audit committee at least since the publication of the financial security law.

We contacted by phone all these companies to establish a list of audit committee members. Then from a list of 30 administrators we obtained 10 meetings. Among the interviewees, 5 are presidents of audit committees.

An interview guide was prepared and 10 semi-directive interviews were realized to establish a sample of items measuring the audit process quality. The interview guide is divided into three parties. The purpose of the first party was to understand the various roles played by audit committees in the improvement of the audit quality and their relationship with the internal and external audit. The second party studied the attributes of the audit process quality. Firstly, we questioned the interviewees about the observable stages of the audit process, and then we identified with them the list of qualitative attributes. In the third party, we questioned the administrators about the evaluation modalities of the audit quality and about their communication methods with the auditors.

Once the data was collected using the semi-directive interview, we completely transcribed them. Then, by interviewee, we compiled a summary of the interviews which we could also match to a report of each case study. These summaries were submitted to the participants so that they could conduct a counter validation.

A content analysis was then carried out from the transcribed data. The analysis was conducted in two phases. A thematic analysis interview by interview was conducted. Then a vertical and horizontal thematic analysis of all the interviews (inter-interview) was conducted. This consisted of giving each interview a more comprehensive thematic structure in its own right (i.e. vertical analysis) and comparing all the interviews on their overall thematic structures (i.e. horizontal analysis). This leads ultimately not to consider the singular consistency of each interview but rather to seek an overall consistency in the body of the data produced by all those involved.

They result in an identification of audit quality indicators by stage of the process. As regards the various process stages to be checked, the members of audit committees were almost convergent on a division of the audit process in three stages: interim stage of understanding of the systems and the evaluation of the company's procedures, stage of account monitoring and the stage of certification and audit report drafting. It would

seem that this audit process division is connected to the objective and to the purpose of every stage consisting in producing an evaluation process report, a synthesis note of the mission (or the audit adjustments proposition) and a report on the accounts certification.

Furthermore, with regards the determining factors for audit quality, at the start we identified 45 items. We then refined this sample of items judged intuitively redundant, to end up with an intermediate sample of 34 determining factors for quality. We finally submitted these items to a content validity procedure with four other members of audit committees and two researchers in audit in order to ask them to verify the lack of redundancy between the items as well as their ease of comprehension. With regard to redundancy between the items, the auditors were called upon to identify those items which referred to the same theme and which risked creating bias in comprehension. After this stage, we arrived at a final sample of 31 items.

### **B. Drafting and Preliminary Testing of the Questionnaire**

On the basis of 31 items identified in the previous stage, a questionnaire was elaborated for the member administrators of audit committees. This questionnaire was then the object of a contents validation and of a pre-test with 3 administrators and two researchers in audit to improve the drafting and consequently the understanding for audit committees.

### **C. Data Collection**

The questionnaire was sent to 68 administrators composing the list of audit committee's members of companies listed on the Tunisian stock exchange in order to focus their appreciation on the importance of the items. As per Sutton (1993), we selected a Likert 7 point scale. This choice facilitates the administration of the questionnaire and offers a good sensibility of answer. We administered the questionnaire by post to all the members of audit committees. Given the relatively reduced number of our population, several re-contacts procedures by phone and by mailing were then made to obtain the maximum of answers. The following table presents the detail of the administrators who responded with regard to the total of 68 audit committees' administrators. On 39 successful complete questionnaires, 10 emanated from presidents of audit committees.

As regards our second sample, it was established with the administrators of the highly-rated companies. From the list of the highly-rated companies retained, we administered our second questionnaire to all the population of the administrators of the selected companies (264 individuals). After-contacting procedures, we obtained 98 exploitable answers. The answer rate is about 37 %. Our choice is justified by the reduced population of audit committee's administrators and by the difficulty to obtain a second significant sample of this population. The use of all the administrators' population is also justified by the good experience that have with the auditors. From their meeting with audit committees, the administrators can have a good knowledge of audit process.

#### **D. Refinement of the Measurement Instrument**

The objective of this stage is to refine the measurement scale for the audit process quality and test the consistency of the scales making up our questionnaire. The refinement and the validation of the factorial structure of scales (exploratory phase and validation phase of Churchill approach) are realized from two quantitative studies realized respectively with 39 members of audit committees and 98 administrators of the listed companies. The first study aims at identifying the factorial structure of the measure scales of the audit process quality. The second has for objective to test the stability of this structure on an administrators' second sample. We so subjected the measure scales to the reliability test (Alpha de Cronbach) and in the exploratory factorial analysis. According to the results obtained, items may be eliminated (Cattel, 1988).

#### **E. Reliability and Validity of the Measurement Instrument**

To obtain reliable and valid measurement scales for the quality of the audit process, we applied, following the example of Roussel (1996), a statistical method which is considered stronger than those proposed by Churchill (1979). So instead of applying the multitrait-multi-method matrix (MTMM), the data stemming from our second questionnaire were the object of two types of analysis: a confirmatory factor analysis and the Rho de Joreskog calculation (Roussel, 2002). The first aims to verify the validity of the factorial structures proposed in the exploratory phase and (using the structural equations method) test the quality adjustment of the measurement instrument with the empirical data. The second consists of verifying the reliability of our measurement scales and statistical validity.

### **IV. THE RESULTS**

#### **A. Reliability and Validity of the Measurement Instrument**

The results of the exploratory phase show that the audit process quality is multidimensional. They display satisfying overall consistency levels for all the scales. However, weaknesses were revealed relating to certain items which were eliminated. On the basis of internal consistency and the consistency of the different scales, the survey questionnaire was reduced from 31 to 27 items. Different measurement scales were then developed for each stage of the audit process. Generally, the different measurement scales present very satisfactory reliability and validity. The different items making up the scales developed are well represented since they present commonalities greater than 0.5. They also present high "loading" with their related factorial focuses. The specific values associated with all the dimensions identified explain more than 50% of the total variance. Furthermore, all the dimensions present satisfactory reliability with Cronbach Alphas greater than 0.5. The following tables summarise the results of the exploratory analysis at the level of the three stages of the audit process identified.

**Table 1**  
Analysis of the scale reliability concerning the determining factors in the quality of the interim phase of audit mission

ITEMS	COMMONALITY	COMPONENTS			
		Knowledge of the company and its environment	Relevance of the risks and sensitive zones identified	Organization and supervision of the mission	Composition and qualification of the contributing team
Good understanding of the company and its information system	0,717	0,798			
Good knowledge of the specificities of the company, its sector and the activity risks	0,520	0,701			
Good understanding of the stakes in the accounting politics of the company and the manager risks	0,538	0,641			
Good knowledge of the risks and sensitive zones of the company.	0,619		0,582		
Coverage of the system and significant and sensitive processes by the auditor	0,559		0,542		
Good use of intern reports (audit interns, internal reporting, reports realized by experts for the benefit of the company) in risks appreciation and the identification of the sensitive zones	0,659		0,748		
Relevance of the weaknesses and tender spots identified and of the report of interim work	0,713		0,794		
Quality of organization of the mission and the level of supervision of the works by the managers or the partner in charge of the mission	0,611			0,738	
Respect of the load plan of the mission	0,751			0,616	
Quality of the meetings of information and discussion with the audit committee and the various managers of the company	0,599			0,610	
Quality of follow-up of the weaknesses and the identified risks years past	0,727			0,809	
Level of expertise(assessment) of the team of audit	0,537				0,678
Phase conducted by highly qualified and experienced contributors	0,555				0,721
Specific values ( $\lambda$ )		2,70	2,41	2,40	1,75
Explained variance		18,03%	16,08%	16,02%	11,65%
Cronbach $\alpha$		0,75	0,68	0,73	0,55

**Table 2**  
Analysis of the scale reliability concerning the determining factors of the final phase of accounts audit

ITEMS	COMMONALITY	COMPONENTS			
		Organization and supervision of the mission and auditor ethics	Relevance and coherence of the programs with the identified risks	Composition and qualification of the audit team	Communication level of and collaboration with the audit committee
Works Organization and level of mission supervision	0,784	0,784			
Presence time and implication degrees of the partner responsible for the mission	0,641	0,731			
Respect of the load plan of the mission	0,704	0,717			
Rotation rate of the managers and people in charge of the mission	0,685	0,722			
Coherence and credibility of the audit programs with the risks and the weaknesses identified in interim phase	0,827		0,902		
Quality of follow-up and assistance to the physical inventory	0,804		0,711		
Relevance of the mission synthesis	0,843		0,874		
Expertise Level of audit team	0,722			0,711	
Stability of the auditors team between the interim phase and the final phase of the mission	0,820			0,876	
Independence level of the team and the partner responsible of the mission towards the direction	0,715				0,746
Communication quality and the collaboration level of the audit team with the interns auditors and the audit committee	0,579				0,733
Specific values ( $\lambda$ )		2,59	1,80	1,71	1,44
Explained variance		25,86%	18,04%	17,14%	14,36%
Cronbach $\alpha$		0,81	0,75	0,65	0,56

**Table 3**  
Analysis of the scale reliability concerning the determining factors of the phase of accounts certification

ITEMS	COMMUNALITES	COMPONENT
		Independence and auditor ethics
Quality of audit reports	0,679	0,864
Independence level of the auditor in the opinion formulation on the accounts	0,789	0,848
Respect for the ethic rules	0,795	0,832
Valeurs propres ( $\lambda$ )		2,51
Variance expliquée		62,98%
$\alpha$ de Cronbach		0,63

**Table 4**  
Test indices for the quality dimensions of the quality of audit process

INDICES		Stage 1	Stage 2	Stage 3	Indicative thresholds	
Absolute measurement indicators	$\chi^2$	36.858	113.828	55.565	Chi-2 the smallest associated with a insignificant probability >0.9	
	GFI	0.929	0.903	0.922		
	AGFI	0.852	0.833	0.841		
	RMR	0.291	0.098	0.114		As low as possible
	RMSEA	0.138	0.078	0.086		<0.08
Incremental measurement indicators	NFI	0.744		0.900	>0.9	
	TLI	0.788	0.868	0.907	>0.9	
	CFI	0.792		0.944	>0.9	
Parsimony measurement indicators	$\chi^2$ normé	3.685	1.866	2.058	Between 1 and 5	
	PNFI	0.596	0.559	0.540	As high as possible (>0.6)	
Reliability indices	Rho de joreskog	0.857	0.98	0.907	> 0.7 or >0.8	

The results of the confirmatory analysis applied to the structure of each audit process stage, confirms the validity of the factorial structure from the exploratory phase. They confirm a good level of reliability and validity of the different measurement scales for the audit process quality. The items which make up the different measurement scales are significant (the CR are all higher than 1.96). On the whole the values of the absolute, incremental and parsimony indices are satisfactory and/or acceptable. The Chi-2 test is on the whole significant. The absolute indices GFI and AGFI are also significant because they exceed their respective thresholds. Furthermore, the incremental indices, although sometimes slightly lower than their

respective thresholds, can be considered as acceptable, considering the relatively low number of items in certain stages of the process. With regards the parsimony indices, we note that  $\chi^2$  index is generally satisfactory. On the other hand, the different scales developed present very satisfactory reliabilities considering that the Rho de Joreskog varies between 0.73 and 0.92.

## V. DISCUSSION AND CONCLUSION

From a rigorous process for the development of measurement scales of the audit process quality, we realized qualitative and quantitative studies via several samples of the audit committees members and administrators. The results allowed us to identify 27 indicators of the audit process quality grouped into 3 main stages.

Following several factorial analyses (exploratory and confirmatory), these indicators were summarised into 7 quality dimensions. Among the identified determining factors, only 4 concerned the technical audit process: The understanding of the company and its environment; the Pertinence risks and sensitive zones identified; The Relevance and coherence of the programs with the identified risks and the communication level and collaboration with the audit committee. Three others determiners relate to: the Independence and ethics of the listener; the composition and the qualification of the audit team; the Organization and the supervision of the mission and auditor ethics.

These determining factors constitute the basis for an evaluation of the audit process quality by audit committee. They show that the audit process is a complex process which needs to be understood through many dimensions. They also show that the audit process quality is not only dependant on the technical determining factors related to the auditor process, but also on the auditor quality (auditor independence and ethic), the organisational characteristics of the audit firm (audit team and mission organisation). These results confirmed partially those found by Manita (2008). Our results identified 3 stages of audit process contrary to those of Manita (2008) who identified 6 stages. Besides the stages identified by our research, Manita (2008) identified the stage of acceptance of the mission, the general apprehension, and the physical inventory. It would seem that the results obtained by Manita (2008) were biased by the perception of the auditors who are influenced by the process decomposition by audit standards. As a matter of fact, in his study, the stages and the various items were identified on the basis of a qualitative study with auditors' sample and not with administrators. As regards items measuring the quality of the audit process, our empirical results confirm largely indicators identified by Manita (2008) and Sutton (1993)<sup>4</sup> even if the evaluation railing developed by this last one was rather intended for the auditors and not for the audit committees.

The main dimension not identified by Manita (2008) in these stages concerns the level of communication and collaboration of the auditor with the audit committee. He showed that the administrators are very sensitive to the way that the auditor communicates with the audit committee, on the identified risks, on the audit programs developed, on the results obtained in all the mission progress stages. It seems that the audit committee's members judge that the consideration by the auditor, during his appreciation of the audit risks, of the understanding and knowledge of the audit

committee of the various systems and the company process and of their works control results, is a sign of efficiency and competence of the auditor.

The quality evaluation of the audit process is a difficult and complex task for the audit committee's members. The evaluation schedule developed by our research should considerably facilitate their task and strengthen their involvement in the audit process. However this measurement scale fixes only the global objectives of control by process stage. It should consequently be considered as a questionnaire of quality control to be refined and to be detailed according to the nature of company activity, its information system and its specificities. This schedule, does exempt administrators from having the required skills to comprehend the audit process. The administrator's competence evokes the problem of the selection and appointment process for administrator. The audit committees for listed American companies generally include administrator selected, not for their network of contacts, but for their competences in accounting or financial fields. Also, this schedule must be complemented by the integration of independent directors within audit committees or any board of directors concerned with audit quality. Contrary to what is understood by company administrators, there are such independent professionals in the market. These may include former high level auditors retrained in an advisory role, business bankers who have been confronted with risk evaluation methods or academics specialising in the field. The independence of these directors can only be preserved by encouraging companies to equip themselves with governance charters or by focusing on regulation (in the USA the Sarbanes Oxley law imposes this independence).

Independently of obtained results, our study has shown the possibility to build a metric for quality based on the audit process. Our approach differs from the standard evaluation approaches because it does not look for substitutes for audit quality through the quality of the auditor, but instead attempts to assess this quality focused directly on the technical auditor process. Obviously this work has its limits. Firstly, we would point out that for the generation of items relative to our measurement scales; we conducted a qualitative study with a group consisting of 10 member administrators of audit committees. In addition to the limit connected to the size of our sample, this method is based on the perception of the practical usefulness of our tool by audit committees and not on an effective measurement of its practical relevance. We would also point out that given the constraints connected to the size of the audit committee members' population, we had use during the validation of our scales to administrators' sample. Even if the population characteristics are close to those of the audit committee members, differences connected to the experience, to the knowledge of the risks and the control system of the company can bias our empirical results. We would finally point out that in spite of the methodological strictness of our approach the results of this study cannot exceed the exploratory threshold and take advantage of a nomologic validity. This limitation is inherent to little comparable research in this domain, which does not allow an appropriate confrontation of our scales with the other studies to identify the differences and explain them. This limit did not also allow us to implement the last stage of Churchill approach (stage 8-Develop the standards). We are indeed situated in a research domain which has been limitedly investigated by the researchers, and besides the study of Manita (2008) and Sutton (1993), we did not find, to our knowledge, other work with which we could compare our empirical results. This is essentially the comparison of the connections between research variables and results of earlier studies

which may establish the predictive or nomologic validity of the questionnaire (Peter, 1981). Furthermore, since the predictive validity and the content validity have strong connections, we are satisfied with the content validity analysis (Evrard et al, 1993; Igalens and Roussel, 1998). Faced with this situation, a new verification of the reliability and, above all, the validity of the scales are necessary before integrating our measurement scales into the explanatory models developed.

### ENDNOTES

1. The quality of an audit approach is determined by the auditor's ability to detect potential errors and anomalies of the system (detection quality ) and to give an account of the "discoveries" highlighted during his work (discovery quality ).
2. The size of the audit firm was considered both as an indicator of competence and independence and though Arthur Andersen went bankrupt following the Enron affair.
3. Batam is a mass distribution company well known locally, especially for electrical goods and quoted on the Tunisian stock exchange. This company went bankrupt without any warning from the auditor. Following a court action against the auditor, he was sentenced to two years imprisonment.
4. With the exception of those focused on an evaluation by the auditors, not able to be observed by the directors. To be specific, this is related to the audit environment and/or the client company such as the competence of the client, changes with the client, client relationships, the completion of the work paper, and the preparation of the client.

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