
Auditors and IT Support in Egypt

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The paper aims at establishing the present status of the auditing profession in Egypt. The research is guided by four prevailing questions. They are: (1) do the Egyptian auditors have preferences? (2) what strategies do Egyptian auditors follow? (3) which tools do they use? and (4) to what extent are they supported by information technology (IT)? The general answer to these questions is that the auditors believe that a knowledge-based system (KBS) could be used for training purposes to overcome the lack of experience and expertise. However, our research also showed that significant differences exist regarding the shortage of experience and expertise, the lack of professional ethics, and the auditor's role in relation to the expected role of IT support. Assuming that this is indicative for developing countries too, we formulate three specific recommendations.

1. Introduction

The objective of the paper is to explore the current auditing framework in Egypt and to investigate the challenges and the possibilities of support by information technology (IT). The most far-reaching idea is to develop a knowledge-based system (KBS) to formulate the auditor's report on financial statements (cf. Wahdan et al., 2005b). Of course, this idea is rather ambitious. Although we would like to develop theories on the use of IT in all developing countries, we will start by one country. We have chosen as representative country, the Arabic country Egypt, since we believe it may give indicative results based on its history and developments in the world of auditing.

The research problem on establishing the present status of the auditing profession in Egypt can be defined by answering four questions: (1) do the Egyptian auditors have preferences? (2) what strategies do Egyptian auditors follow? (3) which tools do they use? and (4) to what extent are they supported by information technology (IT)? So, the objective of this paper can be formulated as follows in four subgoals: (1) to determine to what extent the preferences are felt by the auditors (we distinguish between auditors with an academic degree and practitioners), (2) to determine to what extent the two groups of auditors are following a special strategy in their daily practice, (3) to determine the expectations of the two groups with respect

to the (future) development of KBSs, and (4) to make a thorough analysis of the different perceptions of the IT support by members of the two groups (i.e., auditors in Egypt).

1.1. Auditors in Egypt

As shown above we take Egypt as country of research in our investigations. In Egypt, it is allowed for the accounting and auditing professors to work as external auditors. One might start with the belief that the auditors with an academic degree will provide knowledge that is more integrated (i.e., has a rich information density and is up to date knowledge) than the practitioners, since the academics have access to theoretical and practical knowledge. However, empirical research proved that expert auditors might make similar assessments on similar inputs. The differences, if they exist, depend mainly on human decisions, human knowledge, human interpretation (O'Leary, 2003), and/or human motivations; i.e., it depends on the accountability and the rewards structure in the audit environment (Libby, 1995). Based on the Libby and Luft (1993) model, we expect that the varied background knowledge and experience between those two groups would lead to differences in their opinions and judgements (Libby, 1995). Therefore, we will test whether there is a (significant) difference of perceptions by auditors with an academic degree and practitioners, regarding the current auditing framework and challenges in Egypt. To accomplish the objectives of the paper, a questionnaire was presented to the two groups of auditors; thirteen auditors with an academic degree and nineteen practitioners.

1.2. Outline of the paper

The outline of the paper is as follows. Section 2 describes the background of the current auditing framework. Section 3 presents the research method. Section 4 provides an overview of the auditors' challenges. Section 5 gives the origin of the auditors' challenges. Section 6 discusses the role of a proposed knowledge-based system. Section 7 provides our main conclusions and formulates three specific recommendations.

2. The legal framework in Egypt

As for the current auditing framework we start to discuss the legal framework in Egypt, i.e., the Egyptian governmental efforts to restructure (1) the financial

reporting, (2) the disclosure requirements, and (3) the accounting and auditing standards. As part of the restructuring efforts, company law, banking law, and capital market law were modified. In addition, a central auditing organisation was established, and a new accounting practice law was drafted (cf. Wahdan et al., 2005a). Here we remark that in Egypt, there is no effective code of ethics for professional accountants and auditors. The audit practitioners are not required to follow any modern code of ethics in line with the IFAC code. In practice, there is little awareness among many practicing auditors of international best practice concerning conflicts of interest and auditor independence (Rahman, Msadek, & Waly, 2002). In addition, with regard to the professional standards for accountants and auditors, the educational quality suffers from a lack of a modern curriculum and from a teacher/students squeeze (cf. Rahman et al. (2002). With respect to interviews for an apprenticeship, application letters and employer's letters are usually not subject to verification. This is generally accepted even though all the major international audit firms have a presence in Egypt in addition to well-established local audit firms of which clients include listed companies.

In 2002, Egyptian auditors have accepted twenty-two Accounting Standards and six Auditing Standards (cf. Wahdan et al., 2005a). The Egyptian Standards on Auditing only deal with the reporting issues and ignore the other areas of the ISA (Navady, 2001). Egyptian Standards on Auditing particularly handle the auditor's opinion on financial statements, which enhances the form of a report without covering the entire audit process (Ministry of Foreign Trade, 2003). In the absence of an Egyptian standard regarding a specific treatment, the ISA are applied. In addition, the Egyptian Society of Accountants and Auditors (1998) has issued auditing standards, which constitute a translated copy of the ISA.

Moreover, there are three types of non-compliance with the Egyptian accounting and auditing standards. First, a lack of knowledge and guidelines on the application of Egyptian and international standards restricts ensuring sound accounting and auditing practice (Aly, 2001). Second, the quality of the audit process is influenced by assigning, or changing, auditors. Management usually assigns, or changes, auditors. This practice forces auditors to comply with the wishes of the top management affecting the level of compliance with the accounting and auditing standards. Third, ineffective control mechanisms exist for imposing sanctions on public accountants and auditors who fail to comply with accounting and auditing standards.

Consequently, these practices mislead the users of financial statements. In conclusion, despite great efforts to comply with the accounting and auditing standards in Egypt, there is still a gap between the accounting and auditing standards and the actual practices. We remark that (1) the lack of qualification of those who prepare and audit

financial statements and (2) inadequate regulatory enforcement mechanisms are considered the main reasons for the shortage in the compliance with accounting and auditing standards.

3. Research methods

To answer the four research questions, we performed some explorative investigations. They are based on a questionnaire and interviews. The questionnaire survey consisted (mainly) of questions requiring a response on a five-point Likert-scale (from 5 = strongly agree, to 1 = strongly disagree). The questionnaire was presented to two groups of auditors in Egypt; thirteen auditors with an academic degree and nineteen practitioners. The sample was selected from 17 auditing firms in Egypt (including international auditing firms with a local partnership, such as KPMG, Ernst and Young, and Deloitte Touche Tohmatsu) and two auditors from the Central Audit Organization. In addition to the questionnaire, interviews were carried out with the respondents. With regard to our analysis in which we use statistical means, all results are expressed as a weighted mean. Although the numbers are small, we tested the differences between the views of the two groups with a Student's *t*-test with a *p*-value of 0.05. The usual rule applies: if the *p*-value is less than the level of significance α , the null hypothesis can be rejected (Anderson, Sweeney, and Williams, 2002).

4. The auditors' challenges

The topics of section 4 are: the shortage of experience and expertise (4.1), the lack of professional ethics (4.2), and the weak auditors' judgements (4.3). All three topics support the need for a KBS to help auditors in formulating their opinions.

4.1 Shortage of experience and expertise

According to the Accounting Practice Law in Egypt, university graduates in the field of accounting are automatically registered as certified accountants. The law does not require that auditors who once received their licenses undertake regular training or continue professional education. Also, the Egyptian Society of Accountants and Auditors, which has established qualification examination requirements, does not require any continuation of education for its own members. As a result, most auditors suffer from a lack of modern knowledge, experience, and expertise. Table 1 presents the responses of the two groups of auditors concerning the lack of experience and expertise, and the possible remedies. Our first observation is that the auditors agree per group as to (1) the lack of experienced auditors, (2) the low level of accounting education, and (3) the lack of training opportunities. However, there is a significant difference between both groups, the auditors with an academic degree are more strongly in agreement with these issues than the practitioners. Our second observation deals with the question what factors caused such a scarcity? The answers are not in Table 1, they follow

below. According to the interviews, the scarcity of experienced auditors follows from five factors: (1) the long period required to develop experience with modern knowledge; (2) the lack of feedback information needed to develop experience and improve the judgements accuracy; (3) the decreasing numbers of auditees in each audit firm; (4) the short training time available to novices; and (5) the lack of education and training requirements. We suggested

four remedies (indicated by (4) to (7) below) for these five factors to improve the situation. The responses in Table 1 show that a clear agreement exists with respect to the use of (4) high salaries, (5) incentives and reward systems, (6) improving the quality of education and training, and (7) promoting an auditor to partnership status as strategic remedies.

Table 1: The lack of experience and expertise and auditor's retention.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|--------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the lack of experience and expertise in Egypt follows from: | | | | |
| 1. lack of experienced auditors? | 4.31 | 3.53 | 3.84** | 0.049* |
| 2. low level of education? | 4.38 | 3.58 | 3.91 | 0.032* |
| 3. lack of training? | 4.23 | 3.58 | 3.84 | 0.085* |
| To what extent do you agree that the following strategies are applied by audit firms in Egypt to achieve their auditors' retention: | | | | |
| 4. high salaries? | 4.23 | 4.35 | 4.30 | 0.645 |
| 5. incentives and rewards? | 4.31 | 4.29 | 4.30 | 0.959 |
| 6. improving the education and training? | 4.46 | 4.65 | 4.43 | 0.888 |
| 7. promoting auditor as a partner? | 4.46 | 4.47 | 4.47 | 0.974 |

Values are presented as a weighted mean of each sample and of the total.

**Weighted mean of question 1 (total) = $[(10*5) + (13*4) + (4*3) + (4*2) + (1*1)] / 32 = 3.84$ for example.

* There is a significant difference between the perceptions of the two groups of auditors, $p < 0.05$, question 3: $T = 1.78 > 1.701$

4.2 Lack of Professional ethics

As a result of the limited legal requirements for mandatory audits, smaller firms are usually not engaged in auditing. We have observed that many companies switch auditors from time to time on a purely subjective basis. This behaviour leads to instability of the auditors' position with respect to audit engagements. Moreover, the auditor's independence is strongly affected by the preferences of the family-owned companies (Hudaib and Haniffa, 2005).

The main reasons for the preferences are that the majority of stockholders, the Board of Directors, and the companies' management are usually the same. The instability is further aggravated by a lack of separation between auditing service and consulting services provided by the auditor to the auditee. Moreover, in most companies, accounting for the purpose of tax minimisation takes

precedence over the sound application of accounting principles. As a result, the auditor's independence is affected and the auditor's opinion may be changed due to pressures from management. Some Boards of Directors invite the auditors to attend the regular board meetings and by the end of each meeting, the auditors receive compensation for their attendance as members of the Board (from personal communications with auditors). All these factors negatively affect the fairness of the auditor's opinion. Moreover, the lack of separation between the auditing service and other services provided by auditors affect the auditor's independence. Table 2 presents the results of the survey regarding the lack of professional ethics. Although the sample is rather small (32 persons), we apply our statistical mechanisms as explorative means for the forming of future hypotheses.

Table 2: The lack of professional ethics.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the lack of a code of Professional Ethics in Egypt follows from: | | | | |
| 1. misunderstanding of relationship between an auditor and auditee? | 4.46 | 3.63 | 3.97 | 0.032* |
| 2. auditor's switch because of disagreement with managers and/or shareholders? | 4.31 | 3.53 | 3.84 | 0.037* |
| 3. prevalence of closely held companies? | 4.31 | 4.11 | 4.19 | 0.275 |
| 4. issuance of a clean opinion to retain the auditee? | 4.15 | 3.35 | 3.70 | 0.084* |

* There is a significant difference between the perceptions of the two groups of auditors because $p < 0.05$, question 4: $T = 1.79 > 1.701$

The results indicate that auditors agree as to the presence of all these gaps and their negative impact on the profession and its ethics. However, the results also indicate that there is a significant difference between the two groups' perceptions; the auditors with an academic degree perceive the presence of these challenges more strongly than the practitioners. Indeed, the auditors with an academic degree have a score between agreement and strong agreement, while the practitioners' range is between neutrality and agreement. Here we remark that the prevalence of closely held companies was focused upon as a cause of these gaps.

4.3 Weak auditors' judgements

Auditors frequently arrive at their decision by a personal-judgement approach used throughout the audit. So, the outcome may differ from one auditor to another in estimating the audit risk, the extent of disclosure, and the type of the opinion. Of course, these differences may be caused by the existing range in the auditor's experience and

expertise, but more importantly, they may also be caused by the relationship with the client, which may lead to personal bias and/or misleading judgements. Table 3 presents the results of the survey on the variation of judgements.

The responses indicate that both groups of auditors agree that the variations of the auditors' judgements in Egypt follow from the differences in experience and expertise. They also agree somewhat on the fact that introducing and maintaining high-quality auditing would be a good competitive policy. Again, both groups appear to be neutral (the practitioners) or close to neutrality (the auditors with an academic degree) as to the need to issue a biased opinion in order to satisfy the auditee. It is expected that most auditors are unlikely to admit such a fact. In general, the results support the fact that a gap exists as a result from a lack of experience and expertise. In addition, the quality improvement is not viewed as a likely alternative in supporting the competitive position.

Table 3: The variation of the auditors' judgements.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the variations of the auditors' judgements in Egypt follow from the differences in experience and expertise? | 4.15 | 3.53 | 3.78 | 0.200 |
| To what extent do you agree that the following competition policies are prevailing among the audit firms in Egypt: | | | | |
| 1. the policies maintaining a high-quality auditing? | 3.54 | 3.29 | 3.33 | 0.499 |
| 2. the policies resulting in issuing a biased opinion to satisfy the auditees? | 3.46 | 3.00 | 3.20 | 0.246 |

There is no significant difference between the perceptions of the two groups of auditors because $p > 0.05$.

5. The origin of the challenges

Four factors contribute to the shortage of experience and expertise: (1) legal and organisational gaps; (2) the auditor's role; (3) competition and auditing fees; and (4) the IT audit environment. The factors are discussed below. The purpose of this section is to present the responses of the two groups of auditors to these issues.

5.1 Legal and organisational gaps

Above we noted that there exists a gap between auditing standards and actual auditing practice. At present, we see a lack of understanding, resulting in non-compliance or partial-compliance with auditing standards. This is a challenge faced by many auditors, who are not part of the international accounting firm networks. The gap results (1) from the fact that the Egyptian standards on auditing are insufficient for performing all auditing tasks and (2) from the complexity of the audit environment.

Table 4 presents the results of the survey of the two groups of auditors with respect to the legal and organisational gaps existing in Egypt. It was found that auditors (both academic and practitioners) somewhat agree

on the gaps associated with (1) the lack of auditing standards, (2) the shortage of laws and regulations related to acquiring the auditees (3) the limited legal requirements of mandatory audits, and (4) the automatic registration of auditors, (see Table 4), albeit that there is a small but definitive distinction between the academic auditors and the practitioners. Furthermore, the auditors have a certain level of neutrality regarding the complexity of the audit environment. In summary, the results indicate that there is no significant difference between the two groups' perceptions with respect to these challenges.

5.2 The auditor's role

An audit expectation gap exists when there is a difference in belief between the auditors and the auditees about the duties and the responsibilities assumed by the auditors and the messages conveyed by the auditor's opinion (McEnroe and Martens, 2001). In this subsection, the results of the interviews, concerning the duties and responsibilities of the auditors as perceived by the auditors, are presented and compared to the results of earlier studies on users' satisfaction.

Table 4: Legal and organisational auditing gaps.

| Question | Mean Score | | | P-value |
|--|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the following five legal and organisational gaps are existing in Egypt: | | | | |
| 1. lack of auditing standards? | 3.69 | 3.42 | 3.53 | 0.583 |
| 2. no rules for acquiring clients? | 3.46 | 3.89 | 3.72 | 0.317 |
| 3. limited legal requirements of mandatory audits? | 4.08 | 3.58 | 3.78 | 0.251 |
| 4. automatic registration of auditors? | 4.15 | 3.63 | 3.84 | 0.208 |
| 5. complex audit environment? | 3.15 | 3.67 | 3.28 | 0.367 |

There is no significant difference between the perceptions of the two groups of auditors because $p > 0.05$.

In earlier studies on users' satisfaction with the auditors' performance, users stated their discontent so as (1) to ignore sufficient disclosure, and (2) to report on the management's compliance with laws and regulations, and (3) to report on the disposition of assets. Furthermore, they noted that the unavailability of the audit information during the annual stockholders meetings and the absence of disclosures on the going concern of the audited companies were real items. Apparently, based on the results of earlier studies, there is a clear gap between the auditor's actual performance as seen by the users and the users' perception of the auditors' role, duties, and responsibilities (Aly, 2001; Manson and Zaman,

2001). In Table 5 we show the outcome of our explorative survey.

According to Table 5, a clear agreement (mean score-total) exists on the significance of the role played by the auditors in guiding investment decisions, evaluating companies, and promoting economic development by selecting the optimal allocation of the resources. However, there is a slight but significant difference between the two groups of auditors regarding the auditing role in the companies' evaluation, as the auditors with an academic degree have a higher agreement and support than the practitioners. The results may indicate that the two groups of auditors are in a lower agreement with respect to their role in predicting bankruptcy. In fact, many interviewees expressed their willingness to do so only in the case of special contracts.

Table 5: The auditor's role.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the auditing profession has a role in the following four areas in Egypt: | | | | |
| 1. introduction of guidelines for investors? | 4.31 | 4.79 | 4.59* | 0.111 |
| 2. evaluation of the companies' performance? | 4.62 | 3.89 | 4.19 | 0.050* |
| 3. prediction of the companies' bankruptcy? | 3.15 | 3.42 | 3.31 | 0.578 |
| 4. selection of the optimal allocation of the resources? | 4.62 | 4.47 | 4.53 | 0.249 |

* There is a significant difference between the perceptions of the two groups of auditors because $p < 0.05$, question 2: $T = 2.04 > 1.701$.

5.3 Competition and auditing fees

At the start of this century, it has been noted that competition among audit firms in Egypt to attract and retain auditees has been increasing (Aly, 2001). Owing to competitive challenges, many managers try to minimise auditing fees for their firms. In response, several audit firms have applied cost-free auditing for the first year, and charged their clients an audit fee from the second year. As a result, audit firms have been suffering from low auditing fees, which would ultimately decrease the quality of their audits and may also result in an unfair opinion on the financial statements. This has been aggravated by the fact that high quality university graduates refuse to join the

public accounting profession. They do so since the rewards and fees are not competitive. Table 6 presents the results of our explorative survey regarding the competitive policies and the auditing fee of the auditing profession.

The results show that the two groups of auditors agree that a severe competition exists to attract and retain auditees. The competitive policies include: using personal relationships, introducing additional services to the clients, and decreasing the auditing fees. There are no significant differences between both groups on these issues. In fact, the interviewees emphasized that good personal relationships and helping clients to obtain loans from banks are considered key elements in attracting and retaining the

auditees. However, auditors did acknowledge the presence of “fee competition” with the possibility of resulting in low auditing fees. Needless to say, all these factors, in particular

when combined, may ultimately influence the quality of the audit and the independence of the auditor.

Table 6: The competition and auditing fees.

| Question | Mean Score | | | P-value |
|--|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the following five features exist in Egypt: | | | | |
| 1. keen competition to attract the auditees? | 4.23 | 4.05 | 4.13 | 0.594 |
| 2. keen competition to retain the auditees? | 4.30 | 4.11 | 4.19 | 0.539 |
| 3. decreasing auditing fee as a competitive policy? | 4.00 | 3.71 | 3.83 | 0.536 |
| 4. introducing additional services as a competitive policy? | 4.23 | 4.06 | 4.13 | 0.557 |
| 5. using personal relationships as a competitive policy? | 4.62 | 4.18 | 4.37 | 0.240 |

There is no significant difference between the perceptions of the two groups of auditors because $p > 0.05$.

5.4 The IT audit environment

In this subsection, we focus on the auditors’ perceptions in relation to four aspects: (1) the performance of IT audit; (2) the degree of reliance on IT audit output as audit evidence; (3) the auditing programs used in the audit firms; and (4) the auditing areas in which auditors use these programs in Egypt. There is no doubt that the use of IT for processing data has complicated the audit environment in Egypt. Audit firms have responded to this complexity in different ways. Below we provide two distinct cases: (1) large firms have acquired IT audit programs and hired staff consisting of system designers and specialists; in addition, a number of large audit firms have joined service-oriented multinational companies to provide high-quality services in accordance with international standards on auditing; (2) smaller firms

have applied parallel auditing by simultaneously using both the IT audit program and manual auditing.

Within large audit firms in Egypt, (1) auditing around the computer, (2) auditing through the computer, and (3) auditing using test data (the most common supporter of an IT audit) are used. The responses of Table 7 indicate that the two groups of auditors agree on the lack of experience regarding the IT audit. However, the responses exploratively indicate that the auditors with an academic degree are more strongly in agreement with this issue. As a result, there is a slight but significant difference in the perceptions of the two groups. On the one hand the lack of experienced IT auditors results in higher auditing costs, but on the other hand experienced IT auditors would command higher salaries and benefits due to their skills. So, in this case the amount of money is not a discriminating factor.

Table 7: The lack of IT auditors.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that the lack of IT auditors in Egypt follows from a lack of education and training regarding IT audit? | 4.62 | 3.95 | 4.22 | 0.073* |

* There is a significant difference between the perceptions of the two groups of auditors because $T = 1.86 > 1.701$.

6 The role of a KBS

Several auditors in Egypt have stated that a Knowledge-Based Systems (KBS) in auditing would be helpful in (1) training auditors, (2) standardising the audit procedures and reports, (3) filling in part of the noted shortage in experience and expertise, and (4) the application of auditing standards. The questions in Table 8 are an intrinsic part of our explorative research on the use of IT support, and in particular intelligent IT support. The questions are designed to elicit the auditors’ expectations of the benefits of a proposed KBS. Responses to the questions indicate that there is a strong agreement that a KBS will (1) help educate and train novices and (2) provide a theoretical and practical basis for formulating the auditor’s opinion on the financial statements.

Moreover, the results show that there is a clear agreement that a KBS will help decrease the audit expectation gap, the auditor’s bias, and the reliance on personal judgement. There is also a general feeling that a KBS can help overcome the shortage of experience and expertise. However, despite the general feeling as to filling in the shortage of experience and expertise, there is a significant difference between the two groups: the practitioners are less convinced of this issue. Some respondents believe that using a KBS to overcome the shortage of experience and expertise should be accompanied by a new and modern organisation of the profession and by using standard measures of audit quality. They agree that a KBS would provide practical and theoretical bases to formulate the auditor’s opinion on financial statements. Moreover, a KBS can decrease the auditor’s bias after setting up procedures

to appoint, or change, the auditors and to enrich the auditor's independence.

Table 8: The benefits of a KBS.

| Question | Mean Score | | | P-value |
|--|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that a suggested KBS would: | | | | |
| 1. decrease the audit expectation gap? | 4.46 | 4.21 | 4.31 | 0.353 |
| 2. decrease the auditor's bias? | 4.15 | 4.11 | 4.13 | 0.893 |
| 3. help in educating and training the novices? | 4.62 | 4.47 | 4.53 | 0.566 |
| 4. help in filling in the shortage of experience and expertise? | 4.54 | 4.28 | 4.25 | 0.093* |
| 5. provide theoretical and practical bases to formulate the auditor's opinion on financial statements? | 4.62 | 4.42 | 4.50 | 0.394 |

* There is a significant difference between the perceptions of the two groups of auditors because in question 4: $T = 1.73 > 1.701$

Given the presence of a general agreement for the need and benefits of a KBS, explorative questions were asked as to what audit assessments should be covered by a proposed KBS (Table 9). The responses indicate that a KBS for the auditor's opinion would contain a large range of the audit assessments, viz. regarding the results of control

examinations, the auditor's compliance with applicable auditing standards, the auditee's compliance with accounting principles, the fairness of representation of financial statements, the going-concern uncertainty, and the proper auditor's opinion.

Table 9: The models of a KBS.

| Question | Mean Score | | | P-value |
|---|-------------------|---------------|-------|---------|
| | Auditors academic | Practitioners | Total | |
| To what extent do you agree that a KBS to formulate the auditor's opinion on financial statements should include the following audit assessments: | | | | |
| 1. an assessment of the results of control examinations? | 4.77 | 4.79 | 4.94 | 0.911 |
| 2. an assessment of the auditor's compliance with applicable auditing standards? | 4.77 | 4.89 | 4.84 | 0.353 |
| 3. an assessment of the auditee's compliance with accounting principles? | 5.00 | 5.00 | 5.00 | |
| 4. an assessment of the fairness of representation of financial statements? | 4.46 | 4.89 | 4.72 | 0.036* |
| 5. an assessment of the going-concern uncertainty? | 4.23 | 4.16 | 4.19 | 0.532 |
| 6. an assessment of the proper auditor's opinion? | 4.38 | 4.47 | 4.44 | 0.736 |

* There is a significant difference between the perceptions of the two groups of auditors because $p < 0.05$.

Finally, we remark that the responses on question 3 of Table (9) show that the audit assessments concerning whether the financial statements are prepared in accordance with accounting principles is most important. There is also a slight but significant difference between the two groups on the consensus that an assessment of the fairness of representation (question 4) should be performed before formulating the auditor's opinion on the financial statements. Interviewed auditors suggested that an assessment of planned detection risk should be added to help deciding on the amount of substantive tests of transactions and balances of accounts. It is noticed that assessing detection risk has received little attention from Egyptian auditors in practice when planning the audit. In addition, the auditors suggested that a materiality-assessment threshold should be added to a proposed KBS to help selecting the amount of audit evidence.

7 Conclusion and future research

The results of the study indicate that the two groups of auditors believe that the auditor's work could be used as (1) a guide for investment, (2) a valuation of companies, and (3) sometimes as a mean in predicting bankruptcy. There is a general agreement between the two groups on the presence of variations among the auditors' judgements. Obviously, they result from the differences

in experience and expertise when performing the audit. Furthermore, the complexity of the environment in terms of a changing environment, and the challenges involved in the use of the current information technology (IT) in auditing have aggravated the variations of judgements in reporting. However, there is consensus between the two groups of the interviewees on the development of a KBS, that it can be used in formulating the auditor's opinion on financial statements. On a theoretical and practical basis a KBS would contribute to minimizing the variations of judgements as perceived by them.

This paper has shown that Egypt has still a long way to go before it may act on a par with established countries in the auditing domain. For instance, the Egyptian government has attempted to modify the law to achieve compliance with internationally accepted accounting and auditing standards. In the longer run the authors believe that the government will succeed. To investigate which recommendations should be implemented we scrutinized the Egyptian situation. The examination ranged from technical details to the potential use of modern means such as knowledge-based systems.

7.1. Conclusions

The two groups of auditors believe that the auditing profession has a central role in investment guidance, companies' evaluation,

and economic development. They agree with the presence of variations of auditors' judgements, resulting from the differences in experience and expertise of performing the audit. The presence of high pressure on the auditors in terms of fees paid by the auditees, lack of protective regulations, lack of the professional standards, and weaknesses of the ethical standards in the profession are viewed as important factors at the origin of the challenges discussed.

Moreover, the results indicate that there is a scarcity of experienced auditors and a lack of competitive attitude of the auditing profession in Egypt. The auditors are not required to follow a code of ethics in line with the IFAC code. This deficiency is accompanied by a prevalence of closely held companies and the absence of rules in appointing (or changing) auditors. The auditor's concern (and main priority) has been tax accounting rather than sound financial reporting. Additionally, there is a scarcity of experienced auditors in IT auditing in Egypt because of the lack of knowledge and skills required for such tasks. Despite this general agreement, significant differences are observed between the two groups as to the shortage of experience and expertise, the lack of professional ethics, and the importance of the auditor's role in relation to the expected role of a proposed KBS.

Egyptian auditors are convinced that KBS might help educate and train novices and provide theoretical and practical bases for formulating the auditor's opinion. The results indicate that there is a need for a KBS in formulating the auditor's opinion on financial statements in Egyptian audit firms. Based on the respondents' answers, it may be concluded that the construction of AREX (a KBS developed by the first author, see, Wahdan, 2006) will help overcome the lack of (Egyptian) auditors' experience and expertise, by making the expert's knowledge and experience available to the novice.

7.2. Three recommendations

Proper accounting and auditing is an important issue that will play a part in every country all over the world. We would like to recall the incidents such as the PARMA case, the AHOLD case, the ENRON case, and the WorldCom case. Our first recommendation is to understand that the developing countries are yet in their infancy and therefore may serve as an excellent test bed on how to develop and use a proper KBS and in particular how to set up a proper IT audit environment. Our second recommendation is that, for the moment, other developing countries can learn considerably from the auditing development in the Arabic world, in particular in Egypt. The developments in Egypt may contribute to the process of becoming aware of IT programs in auditing. Our third recommendation is, more importantly, for the world as a whole. Since we see that a new era may start within the auditors' world. we assume that the developing countries will learn from them. Therefore, we recommend collaboration and intensive exchange of information between developing countries and the rest of the world, so that after the upcoming twenty years the developing countries may act

on a par with countries that are nowadays leading in the world of economy.

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