

Ennar, Hager; Damak-Ayadi, Salma

Article

Professional Skepticism And Auditors' Judgments: Evidence from Tunisia

Journal of Accounting and Management Information Systems (JAMIS)

Provided in Cooperation with:

The Bucharest University of Economic Studies

Suggested Citation: Ennar, Hager; Damak-Ayadi, Salma (2024) : Professional Skepticism And Auditors' Judgments: Evidence from Tunisia, Journal of Accounting and Management Information Systems (JAMIS), ISSN 2559-6004, Bucharest University of Economic Studies, Bucharest, Vol. 23, Iss. 3, pp. 596-615,
<https://doi.org/10.24818/jamis.2024.03007>

This Version is available at:

<https://hdl.handle.net/10419/310906>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/4.0/>

Professional skepticism and auditors' judgments: Evidence from Tunisia

Hager Ennar^{1,a} and Salma Damak-Ayadi^b

^aUniversity of Tunis El Manar, FSEG, LR99ES24, LIGUE, University of Manouba, Tunisia

^bUniversity of Carthage, IHEC, LR99ES24, LIGUE, University of Manouba, Tunisia

Abstract

Research Question: What is the impact of professional skepticism on auditors' judgment across varying levels of control risk?

Motivation: Professional skepticism has attracted the attention of various regulators, practitioners, and researchers. However, the empirical results of previous studies have not consistently yielded findings regarding the impact of professional skepticism on auditors' judgment.

Idea: This paper aims to investigate the relationship between professional skepticism and auditors' judgment across different control risk scenarios within the Tunisian context.

Data: The experimental study comprised 127 auditors.

Tools: A between-subjects experiment was conducted, manipulating control risk at two levels (low and high risk). Hurtt (2010) professional skepticism scale was utilized to measure auditors' professional skepticism. Subsequently, a multivariate regression analysis was performed.

Findings: The experimental study provided evidence that professional skepticism leads auditors to exhibit skeptical judgments regarding the assessment of the truthfulness of the client's explanation and the assessment of fraud risk. Additionally, the results show that auditors tend to make more skeptical judgments in a high-risk setting.

Contribution: Understanding the role of trait professional skepticism is crucial for practicing auditors and accounting firms. The findings suggest that professional skepticism has a significant effect on auditors' judgment. Consequently, firms should pay particular attention to the allocation of audit team members based on their level of skepticism.

¹ Corresponding author: Department of Finance and Accounting, FSEG, University of Tunis El Manar, Tunisia, email addresses: ennar.hager@yahoo.fr.

Keywords: professional skepticism, trait, judgment, Tunisia.

JEL codes: M42

1. Introduction

Professional skepticism remains an issue of concern in auditing for regulators, researchers, and audit firms (Khan & Harding, 2020; Khan & Oczkowski, 2021). The International Auditing and Assurance Standards Board (IAASB) defines professional skepticism as “an attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement due to error or fraud, and a critical assessment of evidence” (IAASB, 2022: 22). Auditing standards consistently emphasize its importance (Harding & Trotman, 2017; Khan & Oczkowski, 2021). In this regard, the International Standards on Auditing (ISAs) assert that “the auditor shall plan and perform an audit with professional skepticism, recognizing that circumstances may exist that cause the financial statements to be materially misstated” (IAASB, 2022: 54).

The IAASB (2019: 1) emphasizes that professional skepticism “lies at the heart of a quality audit”. Moreover, some researchers attribute challenges in maintaining audit quality, in part, to a deficiency in professional skepticism (Hurtt, 2010; Khan & Oczkowski, 2021; Nelson, 2009; Nolder & Kadous, 2018; Popova, 2013). The lack of professional skepticism was a primary factor in numerous publicly reported audit failures, contributing to the loss of investors’ trust (Popova, 2013). Considering the mixed results found in the existing literature, the implementation of professional skepticism in practical professional contexts lacks clarity. The reasons auditors have not met professional skepticism expectations remain unclear (Hammersley, 2011; Khan & Oczkowski, 2021; Nelson, 2009).

Recognizing the importance of professional skepticism, researchers sought to capture this construct and examine its impact on auditor behavior. In contrast, prior studies have yielded inconclusive findings regarding the effect of auditors’ skepticism on their judgments (Carpenter & Reimers, 2013; Eutsler *et al.*, 2018; Harding & Trotman, 2017; Popova, 2013; Quadackers *et al.*, 2014; Verwey & Asare, 2022; Ying *et al.*, 2020; Ying *et al.*, 2023) because auditors’ skeptical judgments could be a joint function of their trait skepticism and situational factors (Eutsler *et al.*, 2018; Harding & Trotman, 2017; Popova, 2013; Ying *et al.*, 2020). Therefore, previous research has called for further investigation into the relationship between inherent skepticism and auditors’ skeptical judgments (Hurtt, 2010; Hurtt *et al.*, 2013; Khan & Harding, 2020; Nolder & Kadous, 2018; Robinson *et al.*, 2018; Ying *et al.*, 2020).

We responded to these calls by examining the role of auditors' professional skepticism in the Tunisian context. Specifically, the present work investigated how trait professional skepticism influences the auditor's judgment under varying control risk settings. To this end, we conducted a between-subjects experiment involving 127 auditors. Hurtt (2010) scale served as a measure of professional skepticism, while control risk was manipulated as either low or high. The findings indicate that professional skepticism significantly influences the auditors' judgment regarding the management's veracity and fraud risk assessment. Additionally, the impact of the control environment on the auditors' judgment was confirmed.

By manipulating control risk, our study investigated the effects of varying levels of perceived control risk on auditors' judgments, contributing to a deeper comprehension of the relationship between control risk and professional skepticism, a relatively underexplored area in the existing literature. Hence, the findings offer empirical support for audit judgment and decision-making models that integrate risk assessments, thus enriching the theoretical discourse on professional skepticism.

Furthermore, we contribute to the existing literature by highlighting the crucial role of auditors' trait professional skepticism in shaping their judgments within the Tunisian context. The selection of Tunisia as a research context was prompted by the absence of prior studies on professional skepticism in this country. Previous studies have primarily been conducted in Western contexts or developed countries, leaving a significant gap in the literature regarding similar research in North African countries, particularly Tunisia. Addressing this gap contributes to a more global understanding of professional skepticism and auditing practices.

As an emerging market with a distinct economic and regulatory environment, Tunisia offers valuable insights into professional skepticism and auditors' judgment that may differ from those in more developed markets. Over the last two decades, Tunisia has undertaken regulatory reforms to enhance financial transparency and information quality (Moalla & Baili, 2019). Indeed, the *Ordre des experts-comptables de Tunisie* (OECT), established in 1982, published mandatory Accounting and Auditing Standards from 1984 to 1999. However, the introduction of the Tunisian Accounting System in 1996 rendered these standards obsolete. The absence of a local auditing framework facilitated the adoption of the ISAs established by the IAASB. In 2002, the OECT's Council officially adopted the ISAs, making them mandatory for all registered auditors and accounting firms (Moalla, 2017).

This regulatory environment is complemented by a diverse landscape of auditing firms. Besides local accounting firms, numerous independent auditors are affiliated with prominent international auditing firms, notably the renowned Big Four (Fakhfakh *et al.*, 2008). Hence, auditors in Tunisia must adhere to the standards'

expectations for maintaining professional skepticism throughout the audit process. Furthermore, Tunisia is known for widespread fraud (Hentati-Klila *et al.*, 2017; Khelil *et al.*, 2018), creating fertile ground for research on professional skepticism, which can attract interest from scholars, practitioners, and policymakers focused on audit quality.

Our results should be of interest to auditors and audit firms. Maintaining and promoting skeptical auditors is crucial for audit quality, fraud detection, and, in general, the sustainability of the audit profession (Cohen *et al.*, 2017). Therefore, this study might help audit firms address their hiring and assigning processes.

The remainder of the manuscript is organized as follows: Section 2 reviews prior relevant studies and develops the research hypotheses. Section 3 describes the experimental design, while the empirical results are discussed in Section 4. The last section concludes the paper.

2. Literature review and hypotheses development

To investigate the relationship between professional skepticism and auditors' judgments, previous research has predominantly employed the experimental method. The conceptual models laid out by Nelson (2009) and Hurtt (2010) served as foundational frameworks for these experimental studies (Khan & Oczkowski, 2021). Extending Nelson's work, Hurtt *et al.* (2013: 48) identified key antecedents to skeptical judgment, encompassing “auditor characteristics, evidential characteristics, client characteristics, and external environment characteristics”.

Indeed, “skeptical judgment occurs when an auditor recognizes that a potential issue may exist and that more work or effort is necessary” (Hurtt *et al.*, 2013: 47). Auditor characteristics refer to the distinct and diverse combinations of personal attributes, such as traits, experience, and training, each auditor brings to an engagement. Evidential characteristics pertain to the nature and quality of the evidence available. Client characteristics encompass specific attributes of each client such as client risk or client preferences that could influence auditor judgments. Moreover, external environmental factors surrounding the audit engagement include regulations and standards (Hurtt *et al.*, 2013).

As an individual characteristic, we have focused on auditors' trait professional skepticism and examined its effect on auditors' judgments. The literature consistently highlights the relevance of skeptical traits for auditors (Otchere *et al.*, 2023). Professional skepticism is not only a mandated requirement of auditing standards but also a crucial element for maintaining audit quality (Al-Rawashdeh *et al.*, 2024; Ta *et al.*, 2022). Furthermore, as a client characteristic, we investigated the effect of control risk on auditors' judgments.

2.1 Professional skepticism and auditors' skeptical judgment

While professional skepticism plays a fundamental role in auditing (Nolder & Kadous, 2018), its definition remains intricate and open to interpretation (Xu *et al.*, 2023). From a neutral perspective, Hurtt (2010: 151) regards professional skepticism as “a multi-dimensional construct that characterizes the propensity of an individual to defer concluding until the evidence provides sufficient support for one alternative/explanation over others”. In contrast, adopting a stance of doubt, Nelson (2009: 1) defines professional skepticism “as indicated by auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor”. Within this definition, “auditors who exhibit high PS [professional skepticism] are auditors who need relatively more persuasive evidence (in terms of quality and/or quantity) to be convinced that an assertion is correct”. Professional skepticism is acknowledged as the driving force compelling auditors to identify potential misstatements and thoroughly investigate those they recognize (Nolder & Kadous, 2018). Consequently, an auditor inclined towards higher skepticism would typically demand more evidence to be sufficiently convinced compared to someone with a lower level of skepticism (Quadackers *et al.*, 2014).

Researchers have predominantly focused on investigating the impact of the professional trait of skepticism on auditors' judgments (Carpenter & Reimers, 2013; Eutsler *et al.*, 2018; Farag & Elias, 2012; Harding & Trotman, 2017; Hurtt *et al.*, 2013; Popova, 2013; Quadackers *et al.*, 2014; Ying *et al.*, 2020; Ying *et al.*, 2023). Trait skepticism is “a relatively stable, enduring aspect of an individual” (Hurtt, 2010, p. 150). According to Nelson (2009: 6), and following Libby and Luft (1993), traits are “fixed by the time an auditor commences audit training and practice”.

Based on trait theory (Allport, 1937), we considered professional skepticism a stable characteristic that influences auditors' behavior, leading them to more skeptical judgments. Allport and Odbert (1936, p. 26) defined traits as “generalized and personalized determining tendencies—consistent and stable modes of an individual's adjustment to his environment” (Pervin & John, 2005: 197). Traits denote stable dispositions influencing “individual behavior across a range of situations” (Pervin & John, 2005: 195) and “a tendency to respond in certain ways under certain circumstances” (Tellegen, 1988: 622). Therefore, traits “are stable over time” and “directly influence behavior” (Matthews *et al.*, 2009: 3). The trait theory suggests that these enduring characteristics form a foundational part of an individual's personality, shaping how they perceive and react to various situations. Accordingly, we posit that trait professional skepticism impacts auditors' judgment regarding the truthfulness of the client's explanation and the presence of fraud risk.

2.1.1 Assessment of the truthfulness of the client's explanation

Clients' explanation for unexpected fluctuations is a central source of information for auditors during the planning process (Hirst & Koonce, 1996). Auditors must thoughtfully examine client-supplied information. When dealing with a skeptical auditor, it is common to consider the motivations behind a client's information, like offering clarification for an unexpected fluctuation. In accordance with auditing standards, auditors expressing concerns about management's veracity are mandated to be more skeptical in their judgments (Quadackers *et al.*, 2014). Indeed, “professional skepticism is necessary to the critical assessment of audit evidence, including questioning contradictory audit evidence and the reliability of documents and responses to inquiries and other information obtained from management and those charged with governance” (IAASB, 2022: 59).

The findings of Quadackers *et al.* (2014) unveiled a significant relationship between auditors' skepticism, measured through the presumptive doubt perspective, and their skeptical judgment regarding the truthfulness of management. Harding and Trotman (2017) established a positive association between auditors' skepticism and their skeptical judgment concerning the reliability of management explanations (evidence reliability). Furthermore, Ying *et al.* (2020) affirmed the impact of peer attitude on auditors with a higher level of skepticism, influencing their judgment regarding the reliability of audit evidence provided by the client. In contrast, focusing on the influence of partners' preferences, Ying *et al.* (2023) found no significant effect of trait skepticism on the assessment of the reliability of the client's explanation.

Building on this foundation, it is essential to examine how professional skepticism impacts auditors' judgments. We suppose that trait professional skepticism leads auditors to exhibit a skeptical judgment regarding the truthfulness of the client's explanation. Hence, the first hypothesis holds that:

H1. *There is a negative relationship between professional skepticism and the assessment of the truthfulness of the client's explanation.*

2.1.2 Fraud risk assessment

Fraud risk is defined as the potential presence of fraud (Power, 2013). Generally, risk assessment is deemed a critical audit judgment associated with professional skepticism (Nelson, 2009). In accordance with ISA 240, “due to the characteristics of fraud, the auditor's professional skepticism is particularly important when considering the risks of material misstatement due to fraud” (IAASB, 2022: 111). Consequently, “the auditor shall maintain professional skepticism throughout the audit, recognizing the possibility that a material misstatement due to fraud could exist, notwithstanding the auditor's past experience of the honesty and integrity of the entity's management and those charged with governance” (IAASB, 2022: 105).

Mixed results have been reported regarding the relationship between trait skepticism and fraud risk assessment. Popova (2013) demonstrated that auditors with higher skepticism levels were more sensitive to fraud evidence. The author also indicated that previous client experience had a more pronounced impact on participants with lower skepticism levels. Considering the two perspectives of skepticism (neutrality and presumptive doubt), Quadackers *et al.* (2014) confirmed a relationship between auditors' skeptical characteristics and their judgment about fraud risk. Ying *et al.* (2020) confirmed the influence of peer attitude on auditors with higher skepticism levels regarding the existence of intentional misstatement. In contrast, Carpenter and Reimers (2013) observed no significant effect of auditor skepticism on identifying fraud risk factors or assessing fraud risk. Similarly, Harding and Trotman (2017) and Ying *et al.* (2023) found that trait skepticism had no significant effect on auditors' judgments regarding fraud susceptibility. Considering the preceding discussion, we formulate the following hypothesis:

H2. *There is a positive relationship between professional skepticism and fraud risk assessment.*

2.2 Control risk assessment and auditors' skeptical judgment

Previous studies have recognized the significance of considering situational factors when addressing auditors' skeptical judgment (Harding & Trotman, 2017; Hurtt *et al.*, 2013; Nelson, 2009; Nolder & Kadous, 2018; Ying *et al.*, 2020). Some studies explored clients' characteristics, including client ingratiation (Robertson, 2010), client interpersonal style (Eutsler *et al.*, 2018), fraud risk or fraud indicators (Carpenter & Reimers, 2013; Payne & Ramsay, 2005), and control risk (Phang & Fargher, 2019; Quadackers *et al.*, 2014).

In the current study, we specifically examined control risk as a situational factor. It is precisely defined as “the risk that a misstatement that could occur in an assertion about a class of transaction, account balance or disclosure and that could be material, either individually or when aggregated with other misstatements, will not be prevented, or detected and corrected, on a timely basis by the entity’s controls” (IAASB, 2022: 25). Control risk is entirely internal, arising from management's decisions regarding the adequacy of internal controls, and the auditor's responsibility lies in evaluating its level (Blokdijs, 2004). Hence, an increased auditors' risk assessment leads to a more required audit effort. Despite clear theoretical expectations, empirical evidence from prior research remains ambiguous regarding auditors' responsiveness to client risk factors. According to ISA 315 and ISA 330, auditors must comprehensively understand the entity's internal control components and use this understanding to inform their judgments about the nature, timing, and extent of substantive procedures (IAASB, 2022; Sharma *et al.*, 2008).

The assessment of the client's control environment stands out as a critical risk factor (Beasley, 1996; Phang & Fargher, 2019; Quadackers *et al.*, 2014). In accordance with ISA 330, auditors should consider control risk when addressing and responding to assessed risks. The effectiveness of client controls influences the level of corroboration needed for an explanation, with stronger controls requiring less corroboration (Hirst & Koonce, 1996). In high-control risk settings, auditors must maintain awareness of heightened risks (Joe *et al.*, 2017). Consequently, a skeptical judgment is exercised when auditors acknowledge the potential presence of an issue and recognize the need for additional effort (Hurt *et al.*, 2013).

The presence of risks during the audit process can introduce inconsistencies and psychological discomfort for the auditor. According to the theory of dissonance (Festinger, 1957), encountering inconstancy or dissonance motivates individuals to seek consonance (consistency) by diminishing the dissonance. Moreover, when faced with dissonance, individuals tend to avoid situations that could intensify it. Indeed, “two items of information that psychologically do not fit together are said to be in a dissonant relation to each other. The items of information may be about behavior, feelings, opinions, things in the environment and so on” (Festinger, 1962: 93). Hence, we suppose that a weak control environment creates discomfort for auditors. To reduce the dissonance, they may demonstrate skeptical judgment. Consequently, when facing a high control risk, auditors are supposed to display more skeptical judgment regarding the truthfulness of the client's explanation and the presence of fraud risk.

Quadackers *et al.* (2014) confirmed the impact of control risk. In higher-risk settings, auditors exhibit more skeptical judgment regarding the veracity of management's assertions and fraud risk. Mohd-Sanusi *et al.* (2015) asserted that weak internal controls are associated with a higher likelihood of fraud risk, while robust ones are linked to a lower likelihood.

We hypothesize that when encountering a high control risk, auditors would make more skeptical judgments. These considerations led to the formulation of the following two hypotheses:

H3. There is a negative relationship between control risk and the assessment of the truthfulness of the client's explanation.

H4. There is a positive relationship between control risk and fraud risk assessment.

3. Research methodology

3.1 Research instrument

We performed an experiment, which is the predominant method for examining auditor judgments (Trotman, 2001). As defined by Malhotra and Birks (2007: 306), an experiment is “the process of manipulating one or more independent variables

and measuring their effect on one or more dependent variables". In this context, our experimental approach is particularly advantageous for examining the causal effects of professional skepticism and control risk on auditors' judgment.

We used an experimental case adapted, with permission, from Peecher (1996) and Quadackers *et al.* (2014). The case provided information on an unexpectedly significant increase in the company's gross margin. Participants assumed the auditor's role for the company described in the case study. After reading the case, participants responded to the questions in the instrument. They were also invited to answer two questions on a 9-point scale as manipulation checks regarding the control risk assessment (low vs high). The research instrument ended with the Hurr (2010) scale and demographic questions.

To ensure the internal and external validity of the experimental study, we implemented various procedures, including the control of extraneous variables. These variables, including any factors beyond the dependent and independent variables that could influence the outcomes, require meticulous consideration (Malhotra & Birks, 2007). In this study, we controlled for variables such as gender, overall audit experience, experience with performing analytical procedures, position, and audit firm affiliation.

A between-subjects experimental design was conducted, manipulating control risk as either low or high. This approach was chosen to isolate the impact of control risk on auditors' judgments and enhance internal validity (Stangor, 2011). Participants were randomly assigned to one of two scenarios. Randomization is also a procedure used to control for extraneous variables, thus enhancing internal and external validity (Malhotra & Birks, 2007). To ensure that participants accurately perceived the manipulation of the control risk level, we employed manipulation checks. These checks are specifically used to ensure whether the experimental manipulation has the designed impact on participants (Stangor, 2011).

We ensured that the conditions under which the experiment was conducted were standardized for all respondents (Stangor, 2011). Participants were informed that the study was a survey on the application of analytical procedures. This approach was intended to conceal the main objective of our research, thus preventing any influence on the auditors' responses. Each participant was asked to complete the survey in our presence to verify the proper conduct of the experiment. Before starting, we instructed participants to answer the questions on the instrument without interruption and in the given order. During the experiment, we avoided discussing the survey with respondents and limited our interactions to presenting the instructions already provided in the instrument.

Furthermore, to enhance the external validity and address generalization issues, we conducted a field experiment in a natural environment rather than a laboratory

setting (Lesage, 2000; Stangor, 2011). Before the main data collection, a pilot test (Stangor, 2011) involving three researchers in auditing and three auditors was conducted to ensure the reliability and clarity of the instrument. Changes suggested by pilot participants were considered and incorporated into the final instrument. It is worth noting that participation in the experiment was voluntary, and responses were kept anonymous.

3.2 Independent variables

3.2.1 Professional skepticism

To measure auditors' trait skepticism, we used the Hurtt (2010) Professional Skepticism Scale (HPSS), consisting of 30 items and six characteristics: "a questioning mind, a suspension of judgment, a search for knowledge, interpersonal understanding, self-esteem, and autonomy" (Hurtt, 2010: 151). Participants expressed their level of agreement for each statement using a 6-point Likert scale, ranging from 1 "strongly disagree" to 6 "strongly agree." Consequently, a high (low) score indicates a high (low) level of professional skepticism. Therefore, we anticipated a positive relationship between auditors' trait professional skepticism (as measured by HPSS) and their skeptical judgments.

The HPSS is the most commonly used scale in the auditing literature to measure auditors' professional skepticism (Khan & Oczkowski, 2021). Moreover, it is stable over time (Hurtt, 2010; Hurtt *et al.*, 2013; Popova, 2013; Quadackers *et al.*, 2014; Verwey & Asare, 2021) and has demonstrated reliability as a measure of trait skepticism (Khan & Oczkowski, 2021; Rautiainen *et al.*, 2023).

Originally developed by Hurtt in 2010 in English, the HPSS was translated into French for this study. To verify its cross-cultural validity, two bilingual translators rendered the French version back into English without referencing the original. This method, involving two independent back-translations, helps avoid biases related to personal characteristics (Arfaoui *et al.*, 2016; Vallerand, 1989).

3.2.2 Control risk assessment

We manipulated control environment risk across two levels (low versus high risk). Scenarios were adapted, with permission, from Cohen and Hanno (2000) and Quadackers *et al.* (2014). The manipulated variable was, therefore, measured as a dummy variable equal to one if this risk is high and zero otherwise. In the experimental instrument, two questions were employed as manipulation checks, using a 9-point Likert scale.

3.3 Dependent variables

Based on previous literature, two proxies were used to measure auditors' skeptical judgment:

3.3.1 Truthfulness of the client's explanation

After reading the case, participants were asked to judge the reliability of management's explanations. Specifically, they evaluated "the likelihood that management explanation is right" on a scale of 0-100%. Consistent with Harding and Trotman (2017), Quadackers *et al.* (2014), Ying *et al.* (2020) and Ying *et al.* (2023), a lower likelihood is indicative of a more skeptical judgment.

3.3.2 Fraud risk

Based on the information provided in the case, participants were also tasked with making judgments regarding the possibility of fraud. Specifically, they were asked to evaluate "the likelihood of fraud" on a scale of 0-100%. In line with Carpenter and Reimers (2013), Harding and Trotman (2017), Popova (2013), Quadackers *et al.* (2014), Ying *et al.* (2020) and Ying *et al.* (2023), we posited that a higher assessment of fraud risk reflects a more skeptical judgment.

3.4 Empirical models

In line with the study's objective and to test the stated hypotheses, we chose multiple regression as the data analysis method. Hence, we used the following empirical models:

$$EXPLAN_i = \beta_0 + \beta_1 TPS_i + \beta_2 CRA_i + \beta_1 TPS_i * CRA_i + \varepsilon_i \quad (1)$$

$$FRAUDR_i = \beta_0 + \beta_1 TPS_i + \beta_2 CRA_i + \beta_1 TPS_i * CRA_i + \varepsilon_i \quad (2)$$

Where:

EXPLAN = The truthfulness of the client's explanation, measured as the likelihood that the management explanation is right estimated on a scale of 0-100%

FRAUDR = The fraud risk, measured as the likelihood of fraud estimated on a scale of 0-100%

TPS = Trait of professional skepticism, measured by the Hurtt (2010) Professional Skepticism Scale

CRA = Control risk assessment, which is a dummy variable that equals one if this risk is high and zero otherwise.

3.5 Participants

The population of auditors in Tunisia consists of accountants and chartered accountants (Hamza & Damak-Ayadi, 2023). In line with the experimental study's purpose, we specifically targeted chartered accountants. To control participants' variability (Stangor, 2011), we selected auditors who had all achieved the same academic qualification, thus ensuring homogeneity. This approach neutralizes the effects of differing educational experiences. Consequently, all participants

successfully passed the national exam and were awarded the national chartered accountancy diploma.

To draw the sample, we employed two techniques. We used simple random sampling from the list of chartered accountants who are members of the OECT, published on its website. This method was supplemented by snowball sampling techniques, which were extremely useful in reaching a larger number of chartered accountants with diverse profiles in terms of grade, experience, and affiliation (Stangor, 2011).

The initial sample consisted of 134 auditors, with seven responses removed for failing the manipulation checks. In total, the final sample comprised 127 auditors. Among them, 77.2% were men, and 38.6% belonged to the Big 4 firms. The study participants included 29.1% seniors, 35.4% managers, and 35.4% partners. On average, participants had 9.86 years of general audit experience and 9.01 years of experience with performing analytical procedures (Table 1).

Table 1. Participants characteristics (N=127)

	Mean	Std. Dev.	Frequency
Audit experience in years	9.860	6.101	
Experience with performing analytical procedures	9.010	6.124	
Man			77.2 %
Woman			22.8 %
Senior			29.1 %
Manager			35.4 %
Partner			35.4 %
Big 4 audit firm			38.6 %
International audit firm (non-big 4)			20.5 %
Local audit firm			40.9 %

4. Results

4.1 Descriptive Statistics

Descriptive statistics for trait skepticism are presented in Table 2 (Panel A). Trait skepticism was assessed using the HPSS (Hurt, 2010). A Cronbach's α of 0.727 suggests that the HPSS demonstrates good reliability, in line with the thresholds proposed by Nunnally (1978) and Robinson *et al.* (1991). As can be seen in the table, the mean professional skepticism score in this study (137.24) is comparable to 138.6, the score reported by Hurt (2010).

Table 2. Descriptive statistics

Panel A: Descriptive statistics for trait skepticism							
	N	Mean score	Std. Dev.	Median	Theoretical range	Actual range	Cronbach alpha
TSP	127	137.24	13.533	137	30-180	97-166	0.727

Panel B: Descriptive statistics for the dependent variables

Dependent Variables	CRA	N	Mean	Std. Dev.	Theoretical range	Actual range
EXPLAN	Low	59	63.24	21.40	0-100	0-100
	High	68	48.37	20.88	0-100	9-100
FRAUDR	Low	59	22.32	15.09	0-100	0-60
	High	68	43.93	24.32	0-100	2-100

Table 2 (Panel B) displays the descriptive statistics for the dependent variables. For the first variable, the average level of reliability regarding the client's explanation is lower (48.37%) for the group of auditors exposed to the high control risk scenario compared to the group with low control risk (63.24%). Similarly, for the second dependent variable, in a high control risk scenario, the likelihood of fraud occurrence estimated by the auditors is, on average, higher (43.93%) than that for the low-control risk group (22.32%).

4.2 Hypotheses Testing

To test the hypotheses regarding the impact of trait professional skepticism at varying control risk levels on auditors' judgments, a multivariate regression analysis was conducted. Experimental results are depicted in Table 3.

Table 3. Regression Results

	EXPLAN		FRAUDR	
	Standardized coefficient (Beta)	t (Sig)	Standardized coefficient (Beta)	t (Sig)
TPS	-0.440	-3.716***	0.318	3.032***
CRA	-0.318	-4.006***	0.448	6.372***
TPS*CRA	0.161	1.358	0.128	1.219
Constant		24.227***		20.752***
Adjusted R ²	0.207		0.380	
N	127		127	

The significance levels are: ** = 5 % and *** = 1%.

The first model incorporated trait professional skepticism (TPS), control risk assessment (CRA), and the interaction between them as independent variables, with the likelihood that the management explanation is correct as the dependent variable.

Table 3 shows that the adjusted R^2 is 0.207. The results indicate that both TPS ($\beta = -0.440$, $p < 0.001$) and CRA ($\beta = -0.318$, $p < 0.001$) have a negative effect on auditors' judgment regarding the reliability of management's explanations at the 1% significance level. Therefore, a more skeptical auditor is likely to meticulously examine the evidence presented by their client. Our findings align with those reported by Harding and Trotman (2017). Moreover, consistent with Quadackers *et al.* (2014), the adverse impact of control risk is affirmed. Indeed, a weak control environment leads auditors to adopt a more skeptical stance regarding management's explanation. Therefore, our hypotheses H1 and H3 are validated.

The second model included TPS, CRA, and the interaction between them as independent variables, with the likelihood of fraud occurrence as the dependent variable.

The adjusted R^2 is 0.380. The results indicate that TPS ($\beta = 0.318$, $p < 0.001$) and CRA ($\beta = 0.448$, $p < 0.001$) positively affect auditors' fraud risk assessment at the 1% significance level. Hence, a more skeptical auditor is more inclined to assess the possibility of fraud risk as higher. These results are consistent with those reported by Quadackers *et al.* (2014) but contradict findings from Carpenter and Reimers (2013), Harding and Trotman (2017) and Ying *et al.* (2023). Furthermore, in a high-risk setting, auditors exhibit more skeptical judgment regarding the likelihood of fraud. These findings align with those of Mohd-Sanusi *et al.* (2015) and Quadackers *et al.* (2014). Furthermore, this outcome is consistent with the requirements of the ISAs. In weak control environments, auditors must acknowledge this fact and respond appropriately to the identified risks. Thus, hypotheses H2 and H4 are supported by the study's findings.

In addition, the results suggest a non-significant interaction between TPS and CRA for the two proxies of skeptical judgment. This observation is consistent with the findings of Quadackers *et al.* (2014), where HPSS was used as a measure of professional skepticism.

As a result, professional skepticism holds a crucial role in making audit judgments. Moreover, the client's control risk significantly impacts the auditor's judgment. Additional tests showed that the demographic variables, including gender, overall audit experience, experience with performing analytical procedures, position, and audit firm, do not alter our results.

In short, the experimental study enabled us to emphasize the significance of professional skepticism as an essential trait for audit assignments. It sheds light on its critical role in shaping auditors' evaluations, alongside the significant impact of control risk levels on auditor judgment. Thus, this study underscores the necessity of considering auditor characteristics and situational factors in the audit process.

5. Conclusion

The present study shed light on the role of auditors' professional skepticism in their judgment within the Tunisian context. Specifically, the paper examined the relationship between trait professional skepticism and auditors' judgment across different control risk levels.

To achieve our objective, we opted for the experimental method. Specifically, we conducted a between-subjects experiment while manipulating the level of control risk (high vs low). Following Hurtt (2010), we used the HPSS to measure professional skepticism. The sample consisted of 127 auditors. Our results confirmed the significant relationship between professional skepticism and the auditors' skeptical judgment. Trait skepticism influences the auditors' judgment regarding the accuracy of the client's explanation and the existence of fraud risk. Specifically, a more skeptical auditor tends to step back from client assertions, examining them more thoroughly and considering the possibility of fraud. Besides, the experimental study highlighted the role of the manipulated situational factor, namely control risk. Auditors take into consideration the strength of the internal controls when assessing the accuracy of client explanations and the level of fraud risk.

Researchers and regulators have stressed the significance of professional skepticism (Harding & Trotman, 2017; IAASB, 2019; Khan & Oczkowski, 2021; Nolder & Kadous, 2018). However, previous experimental studies have reached mixed results regarding auditors' skeptical judgments. Researchers in auditing have called for additional investigation into auditors' professional skepticism in explaining their skeptical judgments (Hurtt, 2010; Nolder & Kadous, 2018; Robinson *et al.*, 2018; Ying *et al.*, 2020). This study addressed a significant gap in the literature by exploring the role of auditors' professional skepticism in Tunisia, an emerging market with distinct economic and regulatory conditions. Unlike prior research focused on Western contexts, our findings provide valuable insights into how professional skepticism and control risk impact auditors' judgment in a country where fraud is prevalent, contributing to a more comprehensive, global understanding of auditing practices and underscoring the importance of maintaining professional skepticism in diverse settings.

Using the HPSS, this study enhances the reliability and comparability of its findings with other studies based on the same scale. Moreover, the manipulation of control risk as a situational factor in our study underscores its significance as a critical risk factor, as highlighted by previous research (Beasley, 1996; Phang & Fargher, 2019; Quadackers *et al.*, 2014). The study sheds light on how varying levels of control risk impact auditors' skeptical judgment, contributing to a deeper

understanding of the dynamics between control risk and professional skepticism, an area that has received limited attention in prior literature.

Manipulating control risk at two levels (low and high) aligns with the typical audit scenarios commonly encountered by auditors during their engagements, ensuring that the findings directly apply to actual auditing practices, thus enhancing the practical utility of the research outcomes for professionals.

Furthermore, this study can capture the attention of standard setters dedicated to enhancing audit quality by shedding light on the importance of understanding the role of trait professional skepticism. Moreover, practicing auditors and accounting firms have a vested interest in better comprehending the role of trait professional skepticism. Given its importance, audit firms may need to measure skepticism and integrate it into their hiring and assignment processes (Verwey & Asare, 2022). Our study confirms the validity of the HPSS as a measure of auditors' professional skepticism. Hence, accounting firms can use this scale and meticulously consider assigning audit team members based on their level of professional skepticism. To this end, they can leverage artificial intelligence to enhance the selection and assignment process.

It is worth mentioning that our study may suffer from some limitations. First, the present research focused on the role of auditors' professional skepticism during the planning stage of an audit. Future studies could explore its role in other stages of the audit process (e.g., client acceptance process). Second, this paper investigated the effect of control risk assessment on auditors' skeptical judgment; Thus, further studies can explore additional situational factors, such as time pressure and accountability, that may affect audit quality, along with tax risk, which is particularly relevant in the Tunisian context.

Third, while experimental methods offer a distinct advantage in examining the causal effects of professional skepticism and control risk on auditors' judgment, this approach requires meticulous attention to potential threats to its validity. Besides, this method is constrained by the inability to manipulate multiple factors (Stangor, 2011). Another limitation of our study, similar to much current research, is its emphasis on auditors' judgment. Future studies should investigate auditors' actions to better align with regulatory priorities and provide practical insights to support regulatory standards.

Moreover, a promising alternative direction for future research involves exploring skeptical traits and examining how to maintain a high professional skepticism level during audit procedures (Ciołek, 2017). Finally, exploring the relationship between professional skepticism and artificial intelligence and its impact on auditors' judgment is a compelling area of study that can enhance our understanding of contemporary auditing practices and challenges.

Acknowledgment

The authors are grateful to the journal's editors and reviewers for their valuable and constructive comments. “

References

- Allport, G. W., & Odbert, H. S. (1936) “Trait names: a psycho-lexical study”, *Psychological Monographs*, vol. 47, no. 1: i-171
- Allport, G. W. (1937) *Personality: A psychological interpretation*, New York: Holt, Rinehart & Winston
- Al-Rawashdeh, A. H., Zureigat, B. N., Alrawashedh, N. H., Rabie, A., Zraqat, O., Hussien, L. F., Zureigat, Q., & Alrashidi, M. (2024) “The moderating role of professional commitment in the relationship between time budget pressure and sustainable audit quality: the mediating role of professional skepticism”, *Heritage and Sustainable Development*, vol. 6, no. 1: 365-378
- Arfaoui, F., Damak-Ayadi, S., Ghram, R., & Bouchekoua, A. (2016) “Ethics education and accounting students’ level of moral development: experimental design in Tunisian audit context”, *Journal of Business Ethics*, vol. 138, no. 1: 161-173
- Beasley, M. S. (1996) “An empirical analysis of the relation between the board of director composition and financial statement fraud”, *The Accounting Review*, vol. 71, no. 4: 443-465
- Blokdijs, J. H. (2004) “Tests of control in the audit risk model: effective? efficient?”, *International Journal of Auditing*, vol. 8, no. 2: 185-194
- Carpenter, T. D., & Reimers, J. L. (2013) “Professional skepticism: the effects of a partner's influence and the level of fraud indicators on auditors' fraud judgments and actions”, *Behavioral Research in Accounting*, vol. 25, no. 2: 45-69
- Ciołek, M. (2017) “Professional skepticism in auditing and its characteristics”, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, Vol. 474: 33-40
- Cohen, J. R., & Hanno, D. M. (2000) “Auditors' consideration of corporate governance and management control philosophy in preplanning and planning judgments”, *Auditing: A Journal of Practice & Theory*, vol. 19, no. 2: 133-146
- Cohen, J. R., Dalton, D. W., & Harp, N. L. (2017) “Neutral and presumptive doubt perspectives of professional skepticism and auditor job outcomes”, *Accounting, Organizations and Society*, vol. 62: 1-20
- Eutsler, J., Norris, A. E., & Trompeter, G. M. (2018) “A live simulation-based investigation: interactions with clients and their effect on audit judgment and professional skepticism”, *Auditing: A Journal of Practice & Theory*, vol. 37, no. 3: 145-162
- Fakhfakh, H., Fakhfakh, M., & Pucheta-Martínez, M. (2008) “The impact of harmonisation by the international federation of accountants: an empirical study of the informational value of Tunisian auditors' reports”, *Managerial Auditing Journal*, Vol. 23, no. 8: 824-859

- Farag, M. S., & Elias, R. Z. (2012) "The impact of accounting students' professional skepticism on their ethical perception of earnings management", *Research on Professional Responsibility and Ethics in Accounting*, vol. 16: 185-200
- Festinger, L. (1957) *A theory of cognitive dissonance*, Stanford, California: Stanford University Press
- Festinger, L. (1962) *A theory of cognitive dissonance*, Stanford, California: Stanford University Press
- Hammersley, J. S. (2011) "A review model of auditor judgments in fraud-related planning tasks", *Auditing: A Journal of Practice & Theory*, vol. 30, no. 4: 101-128
- Hamza, M., & Damak-Ayadi, S. (2023) "The perception of audit quality among financial statements users, preparers and auditors, in Tunisia", *Journal of Accounting and Management Information Systems*, vol. 22, no. 2: 202-224
- Harding, N., & Trotman, K. T. (2017) "The effect of partner communications of fraud likelihood and skeptical orientation on auditors' professional skepticism", *Auditing: A Journal of Practice & Theory*, vol. 36, no. 2: 111-131
- Hentati-Klila, I., Dammak-Barkallah, S., & Affes, H. (2017) "Do auditors' perceptions actually help fight against fraudulent practices? evidence from Tunisia", *Journal of Management & Governance*, vol. 21: 715-735
- Hirst, D. E., & Koonce, L. (1996) "Audit analytical procedures: a field investigation", *Contemporary Accounting Research*, vol.13: 457-486
- Hurt, R. K. (2010) "Development of a scale to measure professional skepticism", *Auditing: A Journal of Practice & Theory*, vol. 29, no. 1: 149-171
- Hurt, R. K., Brown-Liburd, H., Earley, C. E., & Krishnamoorthy, G. (2013) "Research on auditor professional skepticism: literature synthesis and opportunities for future research", *Auditing: A Journal of Practice & Theory*, vol. 32: 45-97
- International Auditing and Assurance Standards Board (IAASB) (2019) *Focus on professional skepticism*. New York: IAASB.
- International Auditing and Assurance Standards Board (IAASB) (2022) *Handbook of international quality control, auditing, review, other assurance, and related services pronouncements* (volume 1). New York: IAASB.
- Joe, J. R., Vandervelde, S. D., & Wu, Y. J. (2017) "Use of high quantification evidence in fair value audits: do auditors stay in their comfort zone?", *The Accounting Review*, vol. 92, no. 5: 89-116
- Khan, M. J., & Oczkowski, E. (2021) "The link between trait and state professional skepticism: a review of the literature and a meta-regression analysis", *International Journal of Auditing*, vol. 25, no. 2: 558-581
- Khan, M.J., & Harding, N. (2020) "Why is trait scepticism not consistently reflected in state scepticism? an exploratory study into the role of aesthetic engagement", *Accounting & Finance*, vol. 60: 3743-3774
- Khelil, I., Akrou, O., Hussainey, K., & Noubbigh, H. (2018) "Breaking the silence: an empirical analysis of the drivers of internal auditors' moral courage", *International Journal of Auditing*, vol. 22, no. 2: 268-284

- Lesage, C. (2000) "L'expérimentation de laboratoire en sciences de gestion", *Comptabilité-Contrôle-Audit*, vol. 6, no. 3: 69-82
- Libby, R., & Luft, J. (1993) "Determinants of judgment performance in accounting settings: ability, knowledge, motivation, and environment", *Accounting, Organizations and Society*, vol. 18, no. 5: 425-450
- Malhotra, N. K., & Birks, D. F. (2007) *Marketing Research: An Applied Approach*, London: Prentice Hall
- Matthews, G., Deary, I., & Whiteman, M. (2009) "The trait concept and personality theory", In G. Matthews, L. Deary & M. Whiteman, (Ed.), *Personality traits*. (3rd edition), Cambridge, UK: Cambridge University Press, pp. 3-41
- McCrae, R. R., & Costa, P. T. Jr. (1996) "Toward a new generation of personality theories: theoretical contexts for the five-factor model". In J. S. Wiggins, (Ed.), *The five-factor model of personality: theoretical perspectives*, New York: Guilford Press, pp. 51-87
- Moalla, H. (2017) "Audit report qualification/modification: impact of financial variables in Tunisia", *Journal of Accounting in Emerging Economies*, vol. 7, no. 4: 468-485
- Moalla, H., & Baili, R. (2019) "Credit ratings and audit opinion: evidence from Tunisia", *Journal of Accounting in Emerging Economies*, vol. 9, no. 1: 103-125
- Mohd-Sanusi, Z., Khalid, N. H., & Mahir, A. (2015) "An evaluation of clients' fraud reasoning motives in assessing fraud risks: from the perspective of external and internal auditors", *Procedia Economics and Finance*, vol. 31: 2-12
- Nelson, M. (2009) "A model and literature review of professional skepticism in auditing", *Auditing: A Journal of Practice & Theory*, vol. 28, no. 2: 1-34
- Nolder, C. J., & Kadous, K. (2018) "Grounding the professional skepticism construct in mindset and attitude theory: a way forward", *Accounting, Organizations and Society*, vol. 67: 1-14
- Nunnally, J. C. (1978) *Psychometric theory*, 2nd edition, New York: McGraw-Hill
- Otchere, O. A. S., Owusu, G. M. Y., & Bekoe, R.A. (2023) "Determinants of whistleblowing intentions of accountants: a middle range theoretical perspective", *Journal of Financial Crime*, Vol. 30, no. 5: 1162-1181
- Peecher, M. E. (1996) "The influence of auditors' justification processes on their decisions: a cognitive model and experimental evidence", *Journal of Accounting Research*, vol. 34: 125-140
- Pervin, L. A., & John, O. P. (2005) *La personnalité: De la théorie à la recherche*, Bruxelles, Belgique: De Boeck
- Phang, S. Y., & Fargher, N. L. (2019) "Auditors' evaluation of subsequent events: the effects of prior commitment and type of accountability", *Auditing: A Journal of Practice & Theory*, vol. 38, no. 3: 167-182
- Popova, V. (2013) "Exploration of skepticism, client-specific experiences, and audit judgments", *Managerial Auditing Journal*, vol. 28, no. 2: 140-160
- Power, M. (2013) "The apparatus of fraud risk", *Accounting, Organizations and Society*, vol. 38, no. 6-7: 525-543

- Quadackers, L., Groot, T., & Wright, A. (2014) "Auditors' professional skepticism: neutrality versus presumptive doubt", *Contemporary Accounting Research*, vol. 31: 639-657
- Rautiainen, A., Saastamoinen, J., & Pajunen, K. (2023) "Auditors' perceptions of alternative performance measures – alternative truths and professional skepticism", *Accounting in Europe*, vol. 21, no. 2: 134-153
- Robinson, J. P., Shaver, P. R., & Wrightman, L. S. (1991) *Measures of personality and social psychological attitudes*, San Diego, California: Academic Press
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991) "An attitude approach to the prediction of entrepreneurship", *Entrepreneurship: Theory and Practice*, vol. 15: 13-31
- Robinson, S. N., Curtis, M. B., & Roberston, J. C. (2018) "Disentangling the trait and state components of professional skepticism: specifying a process for state scale development", *Auditing: A Journal of Practice & Theory*, vol. 37, no. 1: 215-235
- Sharma, D. S., Boo, E. F., & Sharma, V. D. (2008) "The impact of non-mandatory corporate governance on auditors' client acceptance, risk and planning judgments", *Accounting and Business Research*, vol. 38, no. 2: 105-120
- Stangor, C. (2011) *Research methods for the behavioral sciences*, 4th Edition, Mountain View, CA: Cengage
- Ta, T. T., Doan, T. N., Pham, D. C., & Tran, H. N. (2022) "Factors affecting the professional skepticism of independent auditors in Vietnam", *Cogent Business & Management*, vol. 9, no. 1: 1-18
- Tellegen, A. (1988) "The analysis of consistency in personality assessment", *Journal of Personality*, vol. 56, no. 3: 621-663
- Trotman, K. T. (2001) "Design issues in audit JDM experiments", *International Journal of Auditing*, vol. 5, no. 3: 181-192
- Vallerand, R. J. (1989) "Vers une méthodologie de validation transculturelle de questionnaires psychologiques: implications pour la recherche en langue française", *Canadian Psychology*, vol. 30, no. 4: 662-680
- Verwey, I. G. F., & Asare, S. K. (2022) "The joint effect of ethical idealism and trait skepticism on auditors' fraud detection", *Journal of Business Ethics*, vol. 176: 381-395
- Xu, G., Yang, C., & Fukofuka, P. T. (2023) "Professional skepticism in practice: an analysis of auditors' stories", *Auditing: A Journal of Practice & Theory*, vol. 42, no. 4: 157-178
- Ying, S. X., Patel, C., & Pan, P. (2020) "The influence of peer attitude and inherent scepticism on auditors' sceptical judgments", *Accounting and Business Research*, vol. 50, no. 2: 179-202
- Ying, S. X., Patel, C., & Dela Cruz, A. L. (2023) "The influence of partners' known preferences on auditors' sceptical judgements: the moderating role of perceived social influence pressure", *Accounting & Finance*, vol. 63: 3193-3215