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The Impact of the Challenges in Auditing Fair Value Measurements on Audit Quality: Evidence from Tunisia

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ABSTRACT

The paper studies the impact of the challenges faced in auditing complex fair value measurements on audit quality. Using survey data, we gather information from audit partners with experience and expertise in auditing fair value measurements to gain further insights into areas that have not been explored in prior research. We extend the literature on collecting information relating to the most critical factors specific to the environment, the task, the auditor, and their interactions that may contribute to audit deficiencies, as well as how challenges differ when auditing financial versus nonfinancial fair value measurements. The findings of this study revealed that the degree of subjectivity of the data and assumptions of fair value measurements, the expertise and knowledge of the auditors, and the use of specialists are the most critical factors contributing to the complexity of auditing fair value. On the other hand, the challenges of fair value audits differ between financial and nonfinancial fair value. However, these challenges have no impact on the audit quality. This study shows that Tunisian external auditors believe the advantages of fair value surpass its drawbacks.

Keywords: Audit, Fair Value, Challenges, Audit Quality, Logistic Regression

1. INTRODUCTION

The globalisation of financial markets, coupled with the liberalisation of economic policies, has driven the internationalisation of accounting standards to meet the needs of cross-border investors (Boumediene et al., 2017). Traditional national accounting frameworks have proven insufficient in providing comparable and decision-useful financial information, necessitating harmonised reporting practices (Zeghal & Mhedhbi, 2012). In response, regulatory bodies such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have pursued convergence initiatives to enhance financial transparency and comparability (Callao et al., 2007). Early adoption efforts were hindered by the voluntary nature of IASB standards and regulatory flexibility within the European Union (EU). However, the EU's mandatory adoption of International Financial Reporting Standards (IFRS) for listed firms in 2005 marked a pivotal shift, accelerating the global implementation of IFRS (Ding et al., 2007).

A cornerstone of IFRS is the emphasis on fair value accounting, which seeks to reflect current market conditions and future cash flow expectations. Proponents argue that fair value enhances transparency by providing timely, market-based valuations (Mohammed, 2024). Critics, however, contend that it introduces volatility and measurement unreliability during market turbulence (Hrytsenko et al., 2023; Hussein, 2025). The 2008 financial crisis intensified this debate, with some alleging that fair value accounting exacerbated systemic risk by forcing downward revaluations of assets (Shaffer, 2010; Badertscher et al., 2012). While subsequent research has moderated these claims, acknowledging fair value's procyclicality without assigning it primary causality, the tension between relevance and reliability persists as a critical research concern (Hussein, 2025).

The challenges of fair value measurement extend to auditing, where concerns over auditor competence and independence have emerged. High-profile failures, such as the unqualified audit opinions issued to Lehman Brothers prior to its collapse (Sikka, 2009), have raised questions about auditors' ability to provide reliable assurance on complex fair value estimates. Regulatory scrutiny has since intensified, with the Public Company Accounting Oversight Board (PCAOB) identifying recurring deficiencies in fair value audits (PCAOB, 2024). Academic research corroborates these findings, linking Level 3 fair value measurements (those based on unobservable inputs) to increased audit effort and quality risks.

Tunisia's ongoing adoption of IFRS reflects this global trend; however, its implementation faces unique challenges, including regulatory gaps, resource constraints, and auditor preparedness (Khlif & Ahmed, 2020). Given the scarcity of empirical studies on fair value auditing in emerging markets, this research examines Tunisian auditors' perceptions of fair value complexities and their implications for audit quality. Specifically, the study aims to:

1. Identify the primary challenges auditors encounter when auditing fair value measurements.
2. Analyse the impact of these challenges on audit quality.

The paper proceeds with a literature review, methodology, results, and discussion, contributing to both academic discourse and practical policy recommendations for the implementation of IFRS in Tunisia.

2. LITERATURE REVIEW

We use the framework developed by Bonner (2008) to examine the factors that contribute to the complexity of auditing fair value. Bratten et al. (2013) rely on the Bonner framework, which examines auditor judgments by analysing three critical and interactive factors of the judgment process—the environment, the task, and the person. In our study, we will examine the effect of the factors presented in Table 1 and their interaction on the complexity of auditing fair value.

Table 1: Environmental, task, and auditor-specific factors affecting the audit of fair values

Environmental-specific factors	Task-specific factors	Auditor-specific factors
Estimation Uncertainty Measurement uncertainty	Task Difficulty	Knowledge and Expertise
Macroeconomic risks Regulatory and Legal Influences	Task Structure	Professional Skepticism

Audit Firm Relationships with The Auditee and with External Valuation Specialists	Management Bias	Cognitive Limitations (and processing demands)

***Source**:* Bratten et al. (2013)

Auditing Fair Value: Environmental-Specific Factors

The most critical environmental factors fall into two broad categories: estimation uncertainty and strategic interactions between auditors and other parties. Estimation uncertainty includes measurement uncertainty and macroeconomic risks. Strategic interactions comprise two sub-categories: regulatory and legal influences, and non-regulatory relationships between audit firms and other parties, including the auditing firm and external evaluation specialists (Bratten et al., 2013).

Measurement uncertainty may arise from the extent to which the accounting estimate is based on observable and unobservable variables (IAASB, 2009). Indeed, a great deal of judgment is left to the auditors, particularly when the item has no market or is illiquid. In this context, Brink et al. (2016) state that measuring fair values for which markets are illiquid requires judgment. Indeed, the hierarchy proposed by IFRS 13 has classified the inputs used to develop fair value estimates according to their level of verifiability. Level 3 inputs are unobservable; fair value estimates based on these inputs may be highly subjective and, therefore, less verifiable.

Black et al. (2018) and Bratten et al. (2013) state that Level 2 and Level 3 estimates require management judgment. Management selects among several models the one that best suits its preferences. Griffith et al. (2015a) state that the most significant deficiency is the inability to assess the reasonableness of management's underlying assumptions and methods. Glover et al. (2017) add that this high measurement uncertainty increases the complexity of the auditor's task and implies higher audit risk.

Regarding macroeconomics risks, Bratten et al. (2013) argue that economic and financial market volatility increases estimation uncertainty related to assumptions and models. Barth and Landsman (2010) consider fair value to be irrelevant and unreliable during periods of market instability. During this period, it is more challenging to estimate fair value. Nevertheless, we cannot think of a better alternative to fair value in periods of market instability.

Additionally, regulatory and legal systems are becoming increasingly important and significant environmental factors that affect the quality of financial reporting (Christensen et al., 2013). Indeed, regulatory and legal systems define behaviours and impose penalties to encourage desired behaviour. The FASB in the United States and the IASB internationally are regulatory bodies that establish the rules. The PCAOB and SEC monitor the behaviour and penalise companies under laws such as SOX in the US.

Numerous studies have demonstrated that the legislation encourages financial statement preparers to provide reasonable estimates. Indeed, Van de Poel et al. (2009) find that high-quality legal systems lead to more prudent and more frequent recognition of depreciation under IFRS. On the other hand, Yao et al. (2018) suggest that a robust institutional environment mitigates management's opportunistic behaviour in utilising Level 2 and Level 3 fair value estimates.

Additionally, the non-regulatory relationships between audit firms and their auditees, as well as the characteristics of these auditees, significantly affect auditing fair value (Bratten et al., 2013). Song et al. (2010) find that measured assets at level 3 are more reliable in companies with strong governance. Dietrich et al. (2001) note that the audit of fair value estimates performed by Big 6

firms is more reliable than that performed by non-Big six firms. In their general economic model, Klein and Leffler (1981) assume that the supplier's or provider's reputation serves as the basis for assessing the quality of the good or service. Their reasoning can be transposed to the audit department. Francis et al. (1999) and Kim et al. (2003) have shown that BIG 4 auditors earn additional fees in many countries while being associated with higher audit quality.

The complexity of fair value estimates may lead auditors to seek the advice of specialists to assist them in evaluating the reasonableness of their estimates (Martin et al., 2006; Kadous et al., 2003). Griffith et al. (2016) and Griffith et al. (2015a) state that the auditor's knowledge of valuation is an essential element of expertise. In this regard, the auditors note that external evaluation specialists often possess more extensive knowledge of evaluation. They also state that non-expert auditors need help identifying problematic issues in the estimates' assumptions. Similarly, Glover et al. (2017) suggest that even auditors with considerable expertise may use external evaluation specialists to assist them in auditing the most complex estimates. However, they argue that regulators accuse auditors of relying too much on the work of specialists. Indeed, according to the PCAOB (2011), regulators view this as an over-reliance.

Auditing Fair Value: Task-Specific Factors

Bratten et al. (2013) argue that estimation uncertainty interacts with task-specific factors, thereby increasing the complexity of the task. Management uses multiple inputs and methodologies when making estimates, increasing the auditor's complexity. Indeed, the auditor must verify and evaluate several inputs and methodologies for an estimate, ensuring that these choices and model weights are appropriate. This results in a complex task for the auditor (PCAOB, 2011b). Similarly, Humphrey et al. (2009) state that understanding management's choices of estimation models and their assumptions is more complicated when market conditions are dynamic and data are unavailable.

In addition, Schroder et al. (1967) and Bonner (2008) state that the diversity and the increase in directives and standards governing the audit of fair value estimates further complicate the auditor's task. It is for this reason that in 2018 the PCAOB proposed to replace the Commission's existing standards for the audit of an accounting estimate and fair value measurements with a single standard, the proposed AS 2501, "Audit of Accounting Estimates, Including Fair Value Measurements," and the amendment of risk assessment standards to deal more specifically with certain aspects of the audit of accounting estimates. In most cases, the auditor must determine which standards to apply, which further complicates the auditor's task (Bratten et al., 2013; Schroder et al., 1967; Bonner, 2008). In addition to enforcing standards, regulators often require more formal guidance rather than updating standards; this increases the demands on the auditor's task because the auditor is required to follow both formal and informal updates.

Auditing fair value is often seen as an unstructured task. Bonner (2008) states that unstructured tasks are complex due to the potential relationship between the auditor's decision variables and their actual realisations. According to the IAASB (2011), there is a significant lag between observable indicators and their actual realisations. Bratten et al. (2013) clearly explain that the unstructured nature of the fair value measurement task is mainly due to the uncertain realisation of estimates. Many unanticipated events can occur between the time the assumptions on which the estimate is based are made and the time they are realised.

Fair value accounting is often considered less reliable because it is subject to manipulation and management bias (Herrmann et al., 2006). Bratten et al. (2013) and Black et al. (2018) believe that the estimation uncertainty associated with fair value estimates creates opportunities for

management to manipulate the results, making the auditor's task even more complex. In addition, Yao et al. (2018) and Black et al. (2018) state that Level 2 and Level 3 fair value measurements involve greater management discretion than Level 1 fair value measurements. Indeed, Level 2 inputs are based on indirect observable inputs, and Level 3 inputs are based on unobservable inputs that involve management judgment. In addition, Boritz et al. (2016) have shown that bank managers use the discretionary power of Level 3 fair value estimates to achieve capital and earnings objectives.

Auditing Fair Value: Auditor-Specific Factors

Lack of knowledge contributes to the difficulty in evaluating the assumptions and estimates of management or external specialists. In this regard, they state that if the auditor lacks the necessary knowledge of fair value measurements to evaluate management's estimates, there may be a lack of sufficient expertise, and the auditor may be unable to evaluate the work of external specialists (Bratten et al., 2013). Griffith (2018) states that one of the causes of the difficulties auditors encounter in identifying misstatements underlying complex estimates is inadequate representation of the estimates. Lack of expertise prevents them from creating rich representations of the problems.

Hurtt et al. (2010) and Knechel et al. (2013) emphasise that professional scepticism is a fundamental characteristic of high-quality audits. Indeed, auditors are more sceptical when they are experts in understanding the client's business and industry. Bratten et al. (2013) confirm that a lack of expertise results in the auditor's inability to accurately assess the risks of misstatement, which contributes to a lack of professional scepticism in developing an independent estimate. Consequently, the auditor will use the model developed by management as a starting point for their analysis. Koehler (1991) states that when an individual assumes a statement is true and seeks all the evidence to confirm it, this will increase confidence in that assumption. When there is a neglect of alternative hypotheses, this will influence the process of seeking information and the representation of problems.

Interactions of Auditor-Specific Characteristics with Environmental and Task Factors

Auditing standards do not require auditors to provide an independent estimate; instead, auditors may use this ambiguity to support management and specialist estimates, rather than providing an independent one (Bratten et al., 2013). Martin et al. (2006) argue that this leads to a need for more scepticism and motivated reasoning. Similarly, Trompeter and Wright (2010) have demonstrated that auditors tend to focus on evidence that confirms the client's explanation rather than seeking evidence that is unconfirmed.

As stated by Bratten et al. (2013), estimation uncertainty is a specific environmental characteristic inherent to fair value measurement, resulting from the subjectivity of this measurement. Canon and Bedard (2017) and Chen et al. (2010) have demonstrated that estimation uncertainty plays a crucial role in the auditor's decision to adjust for errors. Indeed, they show that the greater the estimation uncertainty, the more the auditors are inclined to propose adjustments. They also find that auditors are less likely to propose adjustments when the incentives of the management's ability to manage results are weak and when the auditors' negotiation power is high.

McDaniel and Kinney (1995) and Earley et al. (2008) demonstrate that management's estimates, preferences, and prior period balances negatively impact auditors' adjustments, which are often biased in favour of management's preferences. For example, when auditors follow management's preferences, this may be explained by a need for more professional scepticism. In this case, we are

faced with interactions between factors. Griffith et al. (2012) report that auditors are less likely to generate independent estimates when they are familiar with management's model and preferences. This is explained by several psychological biases that act on the auditor.

Differences in Auditing Challenging Between Financial and Nonfinancial Assets/Liabilities

Glover et al. (2017), in their paper 'Current Practices and Challenges in Auditing Fair Value Measurements and Complex Estimates: Implications for Auditing Standards and the Academy', examined the differences in the audit challenges between financial and nonfinancial fair value measurements. They conclude that most auditors believe that there is a difference between them. The primary factors contributing to this difference are the disparity in market data availability and the level of expertise among auditors. The auditors' responses reveal that nonfinancial assets/liabilities pose additional challenges in fair value auditing compared to financial assets/liabilities. This is because nonfinancial fair values are based on management's assumptions in their valuations, whereas financial fair value measurements are established using observable and more independent data.

3. METHODOLOGY

In this section, we aim to examine the factors of complexity in auditing fair value through an exploratory validation conducted with Tunisian auditors who possess experience and expertise in auditing fair value. Several studies, such as those by Bratten et al. (2013) and Glover et al. (2017), have tried to identify the factors that make auditing fair value challenging. We conducted an exploratory study with Tunisian auditors who have experience and expertise in auditing fair value to assess their level of agreement with the factors identified in the research mentioned below.
We developed the questionnaire by referring to the article by Bratten et al. (2013) to identify the various factors. Regarding the second part of the questionnaire, which inquires about the differences between financial and nonfinancial fair value, we drew upon the study by Glover et al. (2017) as a reference. We submitted five questionnaires to a pre-test by conducting an exploratory pre-survey with five auditors from our sample. The questionnaire was sent via email and through social networks, including Facebook and LinkedIn. We also delivered the questionnaire directly to various auditing and accounting firms, as well as the Big 4. Out of 450 questionnaires administered, we received 100 responses. Moreover, after excluding those with no experience and expertise in fair value auditing, we retained 87 responses, a response rate of 19.33%. Our final sample comprises responses from senior auditors and audit directors from the four major accounting firms—EY, KPMG, Deloitte, and PwC—as well as responses from auditors from other prominent accounting firms, such as Grant Thornton and BDO.
Table 2 details the characteristics of the responses. 85.1% of our sample are men, while only 14.9% are women. 49.4% of the auditors' ages fall between 31 and 40 years, 34.5% are between 20 and 30 years old, while only 9.2% are between 41 and 50 years old, and 6.9% are older than 50 years.

Table 2: Descriptive statistics of the sample characteristics

Variables	Modality	Number	Frequency (%)
Age	20-30	30	34.5

	31-40	43	49.4
	41-50	8	9.2
	More than 50 years	6	6.9
Gender	Men	74	85.1
	Woman	13	14.9

Source: own work

The analysis of the sample composition presented in Table 3 shows that 64.4% of respondents have professional experience of fewer than ten years; 26.4% of the respondents have between 10 and 20 years of professional experience; 6.2% of the respondents have over 20 years of experience.

Table 3: Characteristics of respondents by the number of years of professional experience

NB-EXP	Number	Frequency
Less than 10 years	56	64.4
Between 10 and 20 years	23	26.4
More than 20 years	8	9.2

Source: own work

From Table 4, the average level of experience in auditing the fair value in our sample is 2.80, and the average level of expertise in auditing the fair value is 2.86.

Table 4: Characteristics of respondents by experience and expertise in the audit of fair value estimates

	Number	Minimum	Maximum	Mean	Standard deviation	Variance
EXP_FV	87	1	5	2.80	1.129	1.275
EXPERT_FV	86	2	5	2.86	1.019	1.029

Source: own work

According to Table 5, 69% of the auditors have a national and international customer network.

Table 5: Characteristics of respondents by the type of customer network

CUST-TYP	Number	Frequency (%)
International	15	17.2
National and international	60	69
National	12	13.8

Source: own work

In our sample, 63.2% of auditors are not specialised in a particular type of fair value, while 36.8% are. Indeed, 19.5% of our sample are specialists in the field of Goodwill, 19.5% are specialists in asset depreciation and other financial instruments. In comparison, investment securities constitute the area of specialisation for 17.2% of our sample. Only 10.3% are specialists in fair value liabilities.

Table 6: Characteristics of respondents by specialisation in a particular type of fair value

Specialisation in a particular type of fair value	Number	Frequency (%)
No	55	63.2
Yes	32	36.8

Source: own work

4. Results

To analyse the survey results, we conduct descriptive analysis, a Principal Component Analysis (PCA) and a logistic regression.

4.1. Descriptive statistics

Environmental-Specific Factors

The results we have obtained allow us to conclude that the three most significant environmental challenges are: 1. the degree of uncertainty related to macroeconomic risks, including economic volatility and financial market volatility; 2. the use of external evaluation specialists by the auditor or the auditee; and 3. Regulatory and legal influences. These results differ from previous studies, such as Cannon and Bedard (2017). Likewise, Glover et al. (2017) found that the main challenges are: the difficulty in assessing the reasonableness of the assumptions and the high degree of subjectivity in the estimates. However, it should be noted that the studies by Glover et al. (2017) and Canon and Bedard (2017) did not include questions related to macroeconomic risks and regulatory and legal influences in their questionnaires. Therefore, according to our Tunisian auditors, these challenges are more significant than those related to the complexity of the assumptions underlying the evaluation process and the subjectivity of these assumptions. Thus, we assert that the factors that make fair value difficult to audit depend on the context.

Table 7: Environmental-specific factors

Environmental-specific factors	1	2	3	4	5
The subjectivity of the assumptions	8.0	14.9	31.0	34.5	11.5
Models' uncertainty	3.4	16.1	35.6	29.9	14.9
Macroeconomics risks	1.1	11.5	20.7	42.5	24.1
Regulatory and legal influences	9.2	16.1	19.5	37.9	16.1
Auditee firm size	17.2	18.4	13.8	34.5	14.9
Corporate governance of the auditee firm	9.2	16.1	20.7	23.0	28.7

Audit firm size	26.4	23.0	21.8	16.1	12.6
The use of valuation specialists	9.2	9.2	20.7	28.7	32.2
1: not important; 3: neutral; 5: significant					

Source: own work

Task-Specific Factors

The results we have achieved allow us to conclude that all these obstacles are significant. Notably, the uncertainty of realisation and the difficulty of assessing the reasonableness of the assumptions used in the models are the most frequently observed.

Table 8: Task-specific factors

Task-specific factors	**1**	**2**	**3**	**4**	**5**
Assessing the reasonableness of all the assumptions used in the models	3.4	13.8	25.3	44.8	12.6
Management's use of valuation specialists	8.0	6.9	29.9	37.9	17.2
Management bias	5.7	9.2	33.3	37.9	13.8
Uncertainty of the realisation	0	8.0	18.4	50.6	23.0
1: not important; 3: neutral; 5: significant					

Source: own work

Auditor-Specific Factors

81.6% of auditors believe that the knowledge and expertise of the auditor are important factors influencing the difficulty of auditing fair value, and 79.3% believe that professional scepticism is also a significant factor in this regard.

Table 9: Auditor-specific factors

Auditor-specific factors	***1***	***2***	***3***	***4***	**5**
Expertise and knowledge	4.6	3.4	10.3	33.3	48.3
Professional skepticism	4.6	1.1	14.9	34.5	44.8
1: not important; 3: neutral; 5: significant					

Source: own work

Interactions of Auditor-Specific Characteristics with Environmental and Task Factors

Over 71.3% of auditors consider that estimation uncertainty is a crucial factor that increases the complexity of auditing fair value. Sixty per cent of the auditors consider management's bias and prior period balances the most critical factors.

Table 10: Interactions of auditor-specific characteristics with environmental and task factors

	1	**2**	**3**	**4**	**5**
Auditing standard ambiguity	14.9	23.0	29.9	23.0	9.2
Estimation uncertainty	1.1	9.2	18.4	46.0	25.3
Management's estimates	3.4	9.2	26.4	37.9	23.0
Prior period balances	6.9	10.3	21.8	44.8	16.1
Management's preferences	13.8	12.6	18.4	34.5	19.5
1: not important; 3: neutral; 5: significant					

Source: own work

Differences in Auditing Challenges Between Financial and Nonfinancial Fair Value Measurements

89.7% believe that audit challenges differ between financial and nonfinancial assets/liabilities. 71.3% of the auditors consider that the most differing challenges are the availability and relevance of market data. This result corroborates that of Glover et al. (2017). Some auditors raised other differing challenges, such as the complexity of models, the degree of consistency possible when applying processes, methods, models, and assumptions, the degree of subjectivity, and the differences in perceptions of precision by regulators and users.

Table 11: Differences in auditing challenging between financial and nonfinancial fair value measurements

	Percentage	
DIF_CHALLENG	No	yes
	10.3	**89.7**

Source: own work

4.2. Principal component analysis

In this section, we will perform the PCA to identify factors that increase the difficulty of auditing fair value that are co-varying and may represent latent relevant variables. Therefore, we will examine the primary factors that contribute to the difficulty of auditing fair value. The items that reduce the score and have an individual KMO under 0.5 are removed. Our alpha de Cronbach is 0.778. Thus, the scale constructed from all the items represented by the axes of the PCA is reliable. Bartlett's test tends to zero and is significant. The KMO test must be conducted for each variable and then repeated with all variables (Hair et al., 2006). Indeed, Hair et al. (2006) state that the overall KMO must be greater than 0.5, and the specific KMOs for each variable must be greater

than 0.5 before proceeding with the principal component analysis. Therefore, we must exclude any variable with a KMO of less than 0.5. The final overall KMO is 0.635. Therefore, the results are significant, and factorisation is possible.

From table 12, we conclude that, regarding the factors that increase the complexity of the audit of fair value estimates, six axes can be retained, representing 61.312% of the information. The first axis represents 11.274% of the total inertia, reflecting the degree of subjectivity in the data and assumptions related to the fair value measurement. The second axis represents 10.857% of total inertia and notes the auditee characteristics and corporate governance. Axis 3 represents 10.641% of total inertia and mainly reports the management's influence. Axis 4 represents 10.289% of the total inertia and primarily reports factors specific to the auditor. Axis 5 reports 10.297% of total inertia and is composed of factors related to the use of valuation specialists. Finally, axis six represents 7.977% of the inertia and is related to the management's bias.

First, by proceeding through PCA, our results have become similar to those of previous studies, such as those by Cannon and Bedard (2017) and Glover et al. (2017). Indeed, certain variables that were identified as the most important in our univariate analysis were not significant enough to define the axes in the PCA. The most important factors identified in previous studies are those that contributed the most to defining our axes and are therefore the most significant. Second, the factors we added, compared to the questionnaires formed by Glover et al. (2017) and Cannon and Bedard (2017), formed independent axes and proved to be very important.

Table 12: Total variance explained for the factors of complexity in auditing fair value estimates

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4.474	20.335	20.335	4.474	20.335	20.335
2	2.451	11.143	31.478	2.451	11.143	31.478
3	2.167	9.851	41.328	2.167	9.851	41.328
4	1.661	7.549	48.878	1.661	7.549	48.878
5	1.566	7.117	55.995	1.566	7.117	55.995
6	1.170	5.317	61.312	1.170	5.317	61.312

Source: own work

4.3. Logistic regression

A logistic regression model was employed to analyze the impact of fair value auditing complexity on audit quality. The independent variables in the model were constructed from the principal components identified through a preceding factor analysis (PCA).

Hypothesis

H_1: The degree of subjectivity associated with the assumptions and inputs used in the process has a negative impact on audit quality.

H_2: The realisation of uncertainty has a negative impact on audit quality.
H_3: The size of the auditee has a negative impact on audit quality.
H_4: The use of external evaluation specialists by the auditor or by the audited company has a negative impact on audit quality.
H_5: The management bias has a negative impact on the audit quality.
H_6: The management's estimation has a negative impact on the audit quality.

Variables of the study

Table 13: Variables of the study

Variable	Définition
Dependent variable	
AUD-Q	The factors that increase the complexity of auditing fair value measurements have a negative impact on audit quality (Y/N)
Independent variables	
HYP-SUB	The degree of subjectivity associated with the assumptions and inputs used in the process
REAL-INCERT	The degree of uncertainty associated with the future occurrence or outcome of events underlying the assumptions used
AUD-SZ	The size of the auditee
SPEC	The use of external valuation specialists by the auditor or by the auditee
MNGT -BIAS	Management's intent in determining fair value measurements
MNGT– EST	Management’s estimates
Control variables	
NB-EXP	Number of years of the respondent's experience as an auditor.
BIG 4	Responding member of BIG 4 (Y/N)
EXP-FV	Experience in auditing fair value: Likert scale from 0 to 5

EXPERT-FV	Expertise in auditing fair value: Likert scale from 0 to 5

Model of the study

$$\textbf{AUD-Q} = \beta_0+\beta_1 \text{HYP-SUB}_j+ \beta_2 \text{ REAL-INCERT}_j +\beta_3 \text{ AUD-SZ}_j+\beta_4 \text{ SPEC}_j+\beta_5 \text{ MNGT-BIAS}_j+\beta_6 \text{ MNGT-EST}_j+ + \beta_7 \text{ EXP-NB}+ \beta_8 \text{ BIG4} + \beta_9 \text{ EXP-FV} + \beta_{10} \text{ EXPERT-FV} \quad (1)$$

Where AUD-Q, HYP-SUB, REAL-INCERT, AUD-SZ, UTIL–SPEC, MNGT-BIAS, MNGT-EST, EXP-NB, BIG4, EXP-FV, and EXPERT-FV are the variables defined in Table 13.

5. RESULTS AND DISCUSSION

Our independent variables are uncorrelated because we have selected one variable from each component of the PCA results, which are uncorrelated. Consequently, we do not face a multicollinearity problem. Thus, we proceeded to test the significance of the coefficients assigned to these variables using the Wald test. Following this, we assessed the adequacy and classification of our empirical models.

Table 14 presents the results of the logistic regression estimates for the Model. The Wald statistic measures the statistical significance of each regression coefficient. The null hypothesis (H0) of this test states that the independent variables have no effect on the dependent variable. We reject H0 if the significance of the Wald statistic is less than or equal to the significance level of 0.05. From the findings presented in Table 3, we can conclude that the independent variables do not have a significant impact on audit quality. In other words, the challenges associated with fair value have no impact on the quality of fair value audits. This finding is consistent with the result found by Boumediene et al. (2017).

Thus, hypothesis H1, H2, H3, H4 and H5 are rejected. Therefore, the degree of subjectivity associated with the assumptions and inputs used in the process
(H1): The degree of uncertainty associated with the future occurrence or outcome of events underlying the assumptions used (H2); The size of the auditee (H3); The use of external valuation specialists by the auditor or by the auditee (H4); The use of external valuation specialists by the auditor or by the auditee (H4); Potential bias of fair value by management (H5); and Management's estimates (H6) have no negative impact on the quality of audit. From Table 14, we can conclude that the model 1 for measuring the impact of fair value audit challenges on audit quality can be written as follows:

$$\textbf{AUD-Q} = 0.834-0.424\text{HYP-SUB}_j+ 0.079 \text{ REAL-INCERT}_j +0.228 \text{ AUD-SZ}_j+0.195 \text{ SPEC}_j-0.216 \text{ MNGT-BIAS}_j+0.213 \text{ MNGT-EST}_j+ + 0.297 \text{ EXP-NB}- 0.198 \text{ BIG4} + 0.139 \text{ EXP-FV} - 0.464 \text{ EXPERT-FV}$$

Tableau 14: Logistic regression parameter estimates for the model

	B	E.S	Wald	ddl	Sig.	Exp(B)
SUB_HYP	-,424	,246	2,974	1	,085	,654
REAL_INCERT	,079	,309	,066	1	,797	1,083
AUD_SZ	,228	,196	1,346	1	,246	1,255
SPEC	,195	,223	,763	1	,382	1,215
MNGT_BIAS	-,216	,270	,638	1	,424	,806
MNGT_EST	,213	,271	,618	1	,432	1,237
EXP_NB	,297	,411	,519	1	,471	1,345
BIG4	-,198	,555	,128	1	,721	,820
EXP_FV	,139	,356	,153	1	,695	1,149
EXPERT_FV	-,464	,386	1,446	1	,229	,629
Constante	,834	1,737	,230	1	,631	2,301

Table 15 illustrates the model's ability to predict the dependent variable based on the independent variables. The percentage of correct classification of the statement that fair value challenges have a negative impact on audit quality is 81.1%, and for infirming, it is 37.5%. The overall percentage of correct classification is 64.7%, which is considered a good percentage.

Tableau 15: classification rate

Observed		**Predicted**		
		No	**Yes**	**% correct**
AUD-Q	**No**	12	20	37,5
	Yes	10	43	81,1
Overall percentage				64,7

6. CONCLUSION

Adopting fair value as a valuation method has made it more difficult for auditors to provide reasonable assurance on financial statements (Christensen et al., 2013). This research contributes to the existing literature by examining the factors that increase the complexity of auditing fair value and by investigating the impact of these factors on the audit quality of fair value.

We conducted an exploratory study with Tunisian auditors who have experience and expertise in auditing fair value to collect information on the various factors specific to the environment, the task, and the auditor and their interactions that may contribute to audit fair value deficiencies.

The results of our study showed that the most critical factors contributing to the complexity of auditing fair value are the degree of subjectivity of the data and assumptions of the fair value measurement, the characteristics of the company to be audited, and its regulatory system, the influence of management, the expertise and knowledge of the auditors and the use of specialists. These results corroborate those of Glover et al. (2017) and Canon and Bedard (2017). However, our research provides other factors not taken into account by these researchers and considered necessary by the Tunisian auditors, namely: factors linked to regulatory and legal influences, factors relating to the relationships of audit firms with the companies to be audited (the size of the company to be audited, the size of the audit company and the use of external evaluation specialists), the uncertain realisation of the events underlying the assumptions used, interacting factors such as ambiguity of standards and results from previous periods.

On the other hand, we concluded that 89.7% of auditors believe that the fair value audit challenges differ between financial and nonfinancial fair values. The primary reason is the disparity in the availability and relevance of market data between financial and nonfinancial elements. This result is interesting as the literature has addressed this subject very little in previous research. Additionally, we show that the challenges associated with fair value have no impact on the quality of fair value audits. This finding is consistent with the result found by Boumediene et al. (2017).

Our exploratory study highlights factors beyond those identified in the literature, including regulatory and legal influences, the relationships between audit firms and the auditee, and factors of interaction, such as the ambiguity of standards, management preferences, and prior results preferences, among others.

However, our study has certain limitations. Indeed, the size of our sample is relatively small, which could bias our results. Additionally, the questionnaire technique has its limitations. Indeed, it poses difficulties in interpretation and presents response bias. Future research could focus on examining changes in financial statements, disclosures in audit reports, and updates to ISA 540 that may enhance the audit quality of fair value.

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