

# AUDITOR'S CRITERIA AND INVESTMENT EFFICIENCY: THE MODERATING EFFECT ANALYSIS

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## ABSTRACT

*The aim of this research is to study the impact of specialization, notoriety, recurrence and joint audit on the efficiency of investments as well as the impact of the moderating effect of the auditor's criteria.*

*This study examines the relationship between investment efficiency and audit quality, using a representative sample for the period 2012-2018. In addition, in order to show the relationship between the auditor's criteria this paper uses the moderating effect of the different criteria. i.e., whether such an auditor's criteria effect on investment efficiency is increasing or decreasing with the presence of other criteria. The reached result reveals that the auditor's criteria have a moderating effect on the relationship between audit quality and investment efficiency. Indeed, the presence of two audit criteria makes it possible to improve the investment efficiency. Similarly, there is a causal relationship between the different audit criteria; the presence of an audit criterion makes it possible to have the other criteria.*

**Keywords:** Investment Efficiency, Audit Quality, Auditors' Criteria, Accounting Information Quality.

## INTRODUCTION

There are various control mechanisms to mitigate information asymmetries, information risks and opportunistic behavior of managers, which allow for better control of accounting activity, such as audit quality. The previous literature emphasizes the importance of the auditor's supervisory role (Huili, 2019; Yanqiong, 2019; Zik Shin et al., 2020; Tran, 2020). As a follow-up to this research, we analyze the quality of the audit based on recurrence, notoriety, specialization and the joint auditor, and we examine the moderating effect of these criteria on investment efficiency, under-investment and over-investment.

Using archival data of listed companies in Tunisia from 2012 to 2018, we conduct a batch of analyses of corporate investment efficiency. The results of this study show that the interaction effect of the auditor's criteria reduces problems of over-investment and under-investment. Indeed, the success of the audit mission reduces information asymmetries and monitors managers' opportunistic behavior. The results of this study also show that there is a causal relationship between the auditor's various criteria.

This study contributes to the audit quality and corporate investment efficiency literatures in several ways. First, it extends recent study that documents the positive relation between information quality and investment efficiency. Elaoud & Jarboui, (2017) propose that the higher level of information quality can proxy for managers' broad ability to forecast both accounting earnings and investment project payoffs. They find that auditors' specialization is positively associated with accounting information quality and investment efficiency. As an extension of research, this paper examines how the auditors' criteria enhance the investment efficiency and reduce the investment problems.

Second, the present paper constitutes the first research to analyze the interaction effect between the criteria of auditors on improving investment efficiency, and our results suggest

that there is a causal relationship between the different criteria of the auditor.

Third, this study extends research on the consequences of audit quality by identify the criteria of auditors'. Indeed, this paper analyses the relationship between external audit and investment efficiency using the moderating effect of the auditor's criteria. More specifically, if the effect of the auditor's criteria on the investment efficiency increases or decreases with the presence of other criteria.

Finally, this paper offers insights to investors interested in enhancing the investment efficiency within their firms. Indeed, this research provides empirical support for the investors to find out how the auditor's criteria moderate the audit quality for investment efficiency.

The remainder of this paper is structured as follows: Section 2 comprises a review of the existing literature on audit quality, highlighting the auditor recurrence, notoriety, specialization, and joint audit to develop the auditor's role in determining investment efficiency. Section 3 describes the research design, along with the variable measures, the applied models, and presents the sample. As for section 4 is devoted to analyze the results while the ultimate section present the major conclusion of this research.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The regulator and the researchers assume that a long-term relationship between the auditor and his client may affect the auditor's independence. According to Piketty and Drigo (2018), personal relationships can develop between the auditor and the manager, as well as familiarity that can lead to great vigilance on the part of the auditor and even an obliging attitude of the auditor towards the manager of the audited company (Dickins et al., 2018).

Therefore, this paper notes that the auditor's recurrence has a significant effect on the investment efficiency, which can have a double influence.

On the one hand, the auditor's recurrence can have a negative impact on independence as the longer the duration increases, the closer the relationship between the engagement manager and the client. In this respect, Dickins et al. (2018) proposed in their report a systematic rotation of the work teams and partners in charge of the case.

On the other hand, the auditor's recurrence may be perceived as an advantage in terms of expertise. The latter has a greater knowledge of the company. This situation may not have a negative impact on independence. The former auditor is more valuable to the client. As a result, he is more dependent and able to cope with pressures (Anthony & George, 2016).

Therefore, this paper argues that there is a positive relationship between the auditor's recurrence and investment efficiency, and proposes the following hypothesis:

*H1: There is a positive relationship between the auditor's recurrence and investment efficiency.*

In addition, this paper analyses the impact of the auditor's recurrence on problems of over-investment and under-investment. This leads to the following hypothesis:

*H1a: There is a positive relationship between the auditor's recurrence and under-investmentproblems.*

*H1b: There is a positive relationship between the auditor's recurrence and over-investmentProblems*

The auditor's notoriety plays a regulatory role, in favor of independence. The auditor's objective is, first, to be chosen by investors and, second, to maximize the audit firm's revenue. These two objectives depend on the reputation that an auditor has built up in the market.

There is a large body of research analyzed the relationship between the characteristics of controlled companies and the notoriety of external auditors. Bing & Mary (2012) studied the determinants of auditor selection in the specific context of IPOs, but no study addresses in

a transversal way the analysis of the reputation of audit firms and the investment efficiency of the audited company.

According to Incardona et al. (2014), the majorities of Big4 auditors has a lower incidence of litigation and has a higher revenue quality and are more likely to achieve efficiency. In addition, Incardona et al. (2014) noted that the auditors with a good reputation are less likely to be prosecuted. This has a positive impact on the perception of the quality of their service.

Therefore, auditors with a good notoriety are more likely to increase investment efficiency by reducing the over-investment and the under-investment.

This paper determines how audit quality affects investment efficiency, taking into account the effect of the auditor's notoriety on investment problems.

*H2: There is a positive relationship between the auditor's notoriety and investment efficiency.*

*H2a: There is a positive relationship between the auditor's notoriety and the over-investment problem.*

*H2b: There is a positive relationship between the auditor's notoriety and the under-investment problem*

Previous literature shows that the auditors specialization can enhance the investment efficiency of companies (DeBoskey & Jiang, 2012; Elaoud & Jarboui, 2017). Indeed, knowledge of the business sector of the audited companies should be useful in evaluating the investment. By getting to know the company's accounting information system and accessing knowledge of the type of frequency of potential errors. Sectorial specialization can reflect the willingness of audit firms to achieve greater operational efficiency by developing particular expertise (Elaoud & Jarboui, 2017).

*H3: There is a positive relationship between the auditor's specialization and investment efficiency.*

*H3a: There is a positive relationship between the auditor's specialization and the over-investment problem.*

*H3b: There is a positive relationship between the auditor's specialization and the under-investment problem.*

The joint audit is a new institution that comes to confront the financial scandals that rekindle debates on the credibility of published financial information and, consequently, on the reliability of the auditor's opinion (Lesage et al., 2017).

Joint auditor is the exercise by two or more members or professional companies of an audit engagement to perform, separately, the required procedures, to ensure responsibility and to express an opinion in accordance with the professional standards governing financial audit. In this sense, we can see that the presence of the Joint auditor is a condition for the reliability of the financial statements published by companies Holm et al. (2017). Therefore, in companies with joint auditing, auditors are more likely to audit annual reports more reliably, which increases investment efficiency.

Based on these arguments, we hypothesize that the joint auditor improves the investment efficiency by reducing information asymmetry and earnings management. We are therefore seeking to determine how the joint auditor affects investment efficiency.

To meet our objective, we try to verify the following assumptions:

*H4: There is a positive relationship between joint auditor and investment efficiency.*

*H4a: There is a positive relationship between joint auditor and the problem of over-investment.*

*H4b: There is a positive relationship between joint auditor and the problem of under-investment*

After examining the effects of the audit quality on investment efficiency, we will extend the previous analysis to examine if the effect of auditor's criteria on investment efficiency is increasing or decreasing with the presence of other auditor's criteria. To check this, we include an interaction effect between the different criteria. The use of the interaction effect indicates the moderating between two term (Gomariz & Bellesta, 2014; Elaoud & Jarboui, 2017). Consequently, the fifth hypothesis put forward stipulates that the auditor's criteria have a moderating effect on the relationship between the audit quality and the investment efficiency.

*H5: There is a positive relationship between interaction effect of auditor's criteria and investment efficiency.*

*H5a: There is a positive relationship between interaction effect of auditor's criteria and the problem of over-investment.*

*H5b: There is a positive relationship between interaction effect of auditor's criteria and the problem of under-investment*

## RESEARCH METHODOLOGY

### Data and Sample Selection

The data of this sample is collected from the annual reports of Tunisian companies published on each company's website. The Tunis Stock Exchange (BVMT) was our first source. The analyses are conducted with a sample of non-financial firms. This sample covers industrial companies; companies linked to financing are excluded from the sample.

Empirical study uses a qualitative method of data collection. The analysis period chosen to study the impact of auditors' criteria on investment efficiency is 2012-2018.

### Definition and Measurement of Dependent Variables

In order to analyses the dependency relationship between auditors' criteria and investment efficiency; we need a proxy for over and under-investment.

Biddle et al, (2009), use a model that predicts investment:

- Investment  $i, t = \beta_0 + \beta_1 \text{SalesGrowth } i, t-1 + \varepsilon_{i,t}$
- Investment efficiency =  $-\text{ln } \varepsilon_{i,t}$
- Under-investment = negative residues of the investment model.
- Over-investment = positive residues of the investment model multiplied by -1

Where:

Investment is the net increase in tangible and intangible assets and scaled up by totaldeferred assets

Sales Growth is the rate of change in sales of firm  $i$  from  $t-2$  to  $t$

### Econometric Model

In order to test the effect of audit quality on investment efficiency, we use a next OLS regression:

$$\text{invEffi } i, t = \beta_0 + \beta_1 \text{REC } i, t + \beta_2 \text{NOT } i, t + \beta_3 \text{SPAU } i, t + \beta_4 \text{AJ } i, t + \beta_5 \text{LnSales } i, t + \beta_6 \text{Tang } i, t + \beta_7 \text{LnAge } i, t + \varepsilon_{i,t} \quad (\text{M1})$$

Where:

- InvEfi: Investment efficiency =  $-\ln \varepsilon_{i,t}$  Model of Biddel et al (2009)
- REC: Auditors' recurrence: =Binary variable taking the value 1 if the number of consecutive years of verification is at least 3 years and 0 otherwise.
- NOT: Auditors' notoriety= Binary variable taking the value 1 when the company is audited by at least one "Big 4" and 0 otherwise.
- SPAU: Auditors' specialization = Binary variable taking the value 1 if the auditor has the most clients in the industry and 0 otherwise.
- AJ: Joint auditors:=Binary variable taking the value 1 when the company is audited by a joint auditor and 0 otherwise.
- LnSales: Company size=Natural logarithm of total sales.
- LnAge: Company age=Natural logarithm of the difference between the first year in which the company appears and the current year.
- Tang: tangibility=Tangible fixed assets divided by total assets

As noted in the literature review section, audit quality can contribute to reducing information asymmetry problems (DeBoskey and Jiang, 2012; Gomariz & Ballesta. 2014) and therefore, can reduce under-investment and over-investment problems.

$$\text{Over-investment } i, t = \beta_0 + \beta_1 \text{ REC } i, t + \beta_2 \text{ NOT } i, t + \beta_3 \text{ SPAU } i, t + \beta_4 \text{ AJ } i, t + \beta_5 \text{ LnSales } i, t + \beta_6 \text{ Tang } i, t + \beta_7 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M2})$$

$$\text{Under-investment } i, t = \beta_0 + \beta_1 \text{ REC } i, t + \beta_2 \text{ NOT } i, t + \beta_3 \text{ SPAU } i, t + \beta_4 \text{ AJ } i, t + \beta_5 \text{ LnSales } i, t + \beta_6 \text{ Tang } i, t + \beta_7 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M3})$$

After testing the effects of audit quality on investment efficiency, under- investment and

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ REC } i, t + \beta_2 \text{ NOT } i, t + \beta_3 \text{ REC *NOT } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M4})$$

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ REC } i, t + \beta_2 \text{ SPAU } i, t + \beta_3 \text{ REC *SPAU } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M5})$$

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ REC } i, t + \beta_2 \text{ AJ } i, t + \beta_3 \text{ REC *AJ } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M6})$$

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ NOT } i, t + \beta_2 \text{ SPAU } i, t + \beta_3 \text{ NOT*SPAU } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M7})$$

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ NOT } i, t + \beta_2 \text{ AJ } i, t + \beta_3 \text{ NOT*AJ } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M8})$$

$$\text{Independent variable } i, t = \beta_0 + \beta_1 \text{ AJ } i, t + \beta_2 \text{ SPAU } i, t + \beta_3 \text{ SPAU*AJ } i, t + \beta_4 \text{ LnSales } i, t + \beta_5 \text{ Tang } i, t + \beta_6 \text{ LnAge } i, t + \varepsilon_{i,t} \quad (\text{M9})$$

## REGRESSION RESULTS AND DISCUSSION

We focus on empirically determining the effect of auditors' criteria on investment efficiency. The validated data were entered and analyzed using Stata 12 software.

Table 1 presents the results of the descriptive analysis of the model for the investment efficiency.

Variable	Obs	Mean	Std. Dev.	Min	Max
ineffi	231	-0.071	0.122	-0.805	-0.0002
under	140	-0.049	0.109	-0.988	-0.0001
over	91	-0.076	0.102	-0.673	-0.0012
spau	231	0.367	0.483	0	1
Rec	231	0.683	0.465	0	1
Not	231	0.38	0.486	0	1
AJ	231	0.303	0.46	0	1
LnSales	231	17.218	1.613	10.74	20.487
Tang	231	0.413	0.186	0.092	0.9
LnAge	231	3.496	0.532	1.098	4.488

The Investment efficiency (InvEf) measure attached values prove to be in-line with some earlier elaborated research work (Gomariz & Bellesta, 2014; Elaoud & Jarboui, 2017), the sample notes that the mean of Investment efficiency equals (-0.07) and the Std.Dev (0.12).

We have discovered that the mean of auditor's criteria such as auditors' specialization (0.367), auditors' notoriety (0.380) and audit joint (0.303), these means are very close. In addition, these values seem to be consistent with the previous conducted studies by Elaoud & Jarboui, (2017).

The second Table 2 provides the results of the analyses of our models relating to investment efficiency.

Variables	M1	M 2	M3
	Investment efficiency	Overinvestment	Underinvestment
Rec	0.021	0.056**	0.012
Not	0.078**	0.026	0.143**
Spau	-0.068	-0.056	-0.085
AJ	0.032	0.067**	-0.09**
LnSales	-0.043	-0.018**	-0.006
Tang	0.119	-0.099	0.195*
LnAge	-0.079	0.014	-0.172
Breusch-Pagan	200.7	45.24	233.5
Hausman Test	15.58	8.63	12.04
	-0.029	-0.28	-0.099
R2	0.34	0.26	0.27
Observation	231	91	140

\*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively

In the case of a sample of panel data, it is first necessary to check whether the specification is homogeneous or heterogeneous. The Fisher test is used if the model has a fixed effect, while the Lagrange multiplier test is used if the model has a random effect.

The first model is used to analyses the impact of audit auditors' criteria on the investment efficiency. The result shows that the auditor's notoriety improves the investment efficiency, as the measurement coefficient of this variable is positive and significant. These results confirm the expected results and the results found by previous research, and confirm our (H3) which states that the auditor's notoriety is positively associated with the investments efficiency. Unlike

the expected results and results found.

by previous research, Lai (2009) found a positive and significant relationship between investment opportunities and audit quality.

We focus on over and under-investment problems, the results show that recurrence, specialization and joint audit have a significant effect on the over-investment problem, while notoriety, auditor specialization and joint audit have a significant effect on the under-investment problem.

The results indicate that the control variables have no importance in the regression of the first model, are insignificant variables, and therefore have no effect on investment efficiency.

As such, the third table shows the effect of the interaction terms of the audit quality measurement with the auditor's other criteria that provide us with evidence on the impact of the moderating effect on investment efficiency.

Variables	Independent variable: Investment efficiency					
	M4	M5	M6	M7	M8	M9
Rec	0.010 (0.620)	0.040* (0.08)	0.009 (0.634)			
Not	0.072*** (0.004)			0.025 (0.423)	0.094*** (0.004)	
Spau		0.072*** (0.003)		0.098*** (0.000)		0.062** (0.015)
AJ			- 0.010 (0.806)		0.056 (0.191)	0.049 (0.196)
Rec*Not	0.040*** (0.006)					
Rec*SPA U		0.059** (0.012)				
Rec*AJ			0.064* (0.063)			
NOT*SP AU				0.106* (0.011)		
NOT*AJ					0.042* (0.055)	
SPAU*AJ						-0.032 (0.500)
LnSales	-0.046 (0.121)	-0.047 (0.111)	-0.039 (0.18)	-0.046 (0.108)	-0.042 (0.152)	-0.038 (0.203)
Tang	0.106 (0.236)	0.105 (0.235)	0.114 (0.198)	0.128 (0.142)	0.128 (0.152)	0.118 (0.183)
LnAge	-0.098 (0.309)	-0.088 (0.351)	-0.069 (0.466)	-0.117 (0.215)	-0.075 (0.425)	-0.066 (0.492)
Breusch- Pagan	233.24 (0.000)	215.04 (0.000)	221.26 (0.000)	230.61 (0.000)	208.82 (0.000)	198.84 (0.000)
Hausman Test	16.21 (0.0395)	13.69 (0.090)	15.87 (0.044)	16.84 (0.031)	15.74 (0.046)	15.42 (0.051)
R <sup>2</sup>	0.15	0.16	0.25	0.18		0.15
Observati on	233	233	233	233	233	233

\*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

Table 3 enables the auditor's criteria on investment efficiency to be tested. In this model, the recurrence has a positive and significant coefficient, showing that this variable has effect on investment efficiency.

Similarly, interactions between the auditor's recurrence measurement and audit quality have a significant effect on investment efficiency. On the other hand, the term recurrence and notoriety interaction has a positive and significant effect on investment, which provides us with evidence on the presence of two auditor's criteria in determining investment efficiency, in addition, the coefficient of the interaction terms "SPAU\*AJ and SPAU\*NOT" are positive and significant indicating that the moderating effect between auditors' specialization and audit quality improve the investment efficiency.

The results also show that the auditor's notoriety and the auditor's specialization are two important criteria in improving the investments efficiency. Indeed, a company can mitigate investment inefficiency when the notoriety of a specialist auditor is high.

The interaction term of the measure of the auditor's specialization and the auditor's notoriety provides evidence that the presence of the auditor's specialization has a moderating effect between the notoriety and the investment efficiency.

The following table shows the effect of the interaction terms of the audit quality measure with the auditor's other criteria that provide us with evidence that the auditor's criteria has a moderating effect between audit quality and underinvestment:

<b>Table 4</b>						
<b>THE EFFECT OF AUDITORS' CRITERIA ON UNDERINVESTMENT</b>						
<b>Variables</b>	<b>Independent variable: underinvestment</b>					
	<b>M4</b>	<b>M5</b>	<b>M6</b>	<b>M7</b>	<b>M8</b>	<b>M9</b>
Rec	-0.002 (0.925)	0.065** (0.017)	-0.008 (0.679)			
Not	-0.002 (0.925)			0.024 (0.205)	0.061** (0.034)	
Spau		0.101*** (0.001)		0.092*** (0.000)		0.077*** (0.002)
AJ			0.204*** (0.000)		0.094** (0.023)	-0.042 (0.255)
Rec*Not	0.049* (0.086)					
Rec*SPAU		0.144*** (0.003)				
Rec*AJ			0.206*** (0.000)			
NOT*SPAU				0.004* (0.092)		
NOT*AJ					0.091* (0.075)	
SPAU*AJ						0.004** (0.020)
LnSales	-0.009 (0.752)	-0.016 (0.569)	0.002 (0.714)	0.002 (0.772)	0.003 (0.694)	0.002 (0.772)
Tang	0.185* (0.066)	0.143 (0.143)	0.088 (0.168)	0.078 (0.251)	0.079 (0.222)	0.078 (0.251)
LnAge	-0.196 (0.15)	-0.237* (0.071)	-0.026 (0.375)	-0.044 (0.192)	-0.045 (0.158)	-0.044 (0.192)
Breusch-Pagan	296.23 (0.000)	237.11 (0.000)	451.73 (0.000)	231.8 (0.000)	340.52 (0.000)	231.8 (0.000)
Hausman Test	23.33 (0.003)	25.84 (0.001)	8.18 (0.415)	11.92 (0.154)	12.23 (0.141)	11.92 (0.154)
R <sup>2</sup>	0.27	0.33	0.25	0.24	0.24	0.24
Observation	140	140	140	140	140	140

\*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.



The results show that the auditor's notoriety and the auditor's recurrence are two important criteria in reducing under-investment problems. These results are similar with Gomariz & Ballesta (2014) which indicate that management decisions can influence investment efficiency in addition to targeting external parties.

In addition, Table 4 also show the coefficient is positive and significant on the interaction variable indicates that investment efficiency is significantly higher for companies controlled by an auditor with several criteria.

The following table shows the impact of the interaction effect in the overinvestment in Table 5.

Variables	Independent variable: overinvestment					
	M4	M5	M6	M7	M8	M9
Rec	0.003 (0.913)	0.020 (0.414)	0.069*** (0.007)			
Not	-0.036 (0.425)			0.038 (0.171)	0.044 (0.172)	
Spau		0.122*** (0.004)		0.07* (0.051)		0.074* (0.057)
AJ			0.095** (0.021)		0.090** (0.018)	0.088** (0.047)
Rec*Not	0.15** (0.026)					
Rec*SPAU		0.060* (0.076)				
Rec*AJ			0.046** (0.036)			
NOT*SPAU				0.228*** (0.000)		
NOT*AJ					0.045** (0.040)	
SPAU*AJ						0.249*** (0.003)
LnSales	-0.01 (0.861)	-0.033 (0.555)	-0.018* (0.038)	0.005 (0.928)	-0.018** (0.047)	-0.074 (0.209)
Tang	-0.08 (0.608)	-0.045 (0.753)	-0.093 (0.26)	-0.007 (0.996)	-0.095 (0.259)	-0.104 (0.498)
LnAge	0.046 (0.747)	-0.092 (0.478)	0.012 (0.258)	-0.021 (0.872)	0.012 (0.568)	-0.086 (0.533)
F(32,190)	1.80 (0.034)	2.74 (0.001)	27.31 0.0006	2.44 0.0027	Wald chi2(8) = 26.94 (0.0000)	2.11 (0.01)
Breusch-Pagan	47.27 (0.0000)	61.37 (0.000)	47.77 (0.000)	44.91 (0.0000)	45.12 (0.000)	45.2 (0.000)
Hausman Test	18.49 (0.017)	24.28 (0.0069)	10.61 (0.224)	28.13 (0.0004)	8.15 (0.481)	23.44 0.002
R <sup>2</sup>	0.37	0.51	0.25	0.45	0.27	0.41
Observation	91	91	91	91	91	91

\*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively

The results show that the interaction between the auditor's notoriety and the auditor's specialization are two important criteria in reducing the overinvestment. In addition, the result shows that the presence of a joint audit in the audit mission reduces the problem of overinvestment. Indeed, a company can mitigate investment problems when the notoriety of

specialist auditors is high (thus supporting assumption 5).

## CONCLUSIONS

This work is designed as an extension to the previous research by attempting to document the panel through which audit quality can relate to the investment efficiency. Indeed, the presence of two audit criteria makes it possible to improve the investment efficiency. Similarly, there is a relationship between the different audit criteria; the presence of an audit criterion makes it possible to have the other criteria. This study offers insights to investors interested in enhancing the investment efficiency within their firms. In addition, it provides a perspective for corporate executives to alleviate the problems of under-investment and over-investment in the company.

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