

CONTRIBUTION OF INTERNAL AUDIT AND AUDIT COMMITTEE TO VALUE CREATION IN UNLISTED COMPANIES

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Abstract- Organizational governance mechanisms such as internal audit and audit committees have become crucial components of corporate structures. As these functions mobilize substantial resources, it is imperative that they generate value, particularly for unlisted companies, which face increased risks that could jeopardize their long-term survival. However, assessing in advance the value they bring to these companies is a challenge. To solve this problem, we used EVA (Economic Value Added) based on accounting beta as a tool to estimate the value creation within unlisted companies. Then, to analyze this contribution, we employed two econometric models: a static panel model providing short-term results, and a dynamic panel model providing medium- and long-term results, using the GMM (Generalized Method of Moments) method. Furthermore, we have demonstrated, through the study of a panel of 31 unlisted Moroccan public sector companies over the period from 2005 to 2019, that certain internal audit and audit committee variables have a positive and significant influence on value creation.

Keywords: Internal Audit, Audit Committee, Accounting Beta, Value Creation, Unlisted Companies.

1. INTRODUCTION

The history of corporate finance has witnessed a spectacular collapse of organizations that once stood among the flagships of the markets. This situation is largely due to the failure of internal controls and risk management systems. Indeed, shareholders entrust the power to decide and the fate of their resources to managers with a view to creating additional value. With this in mind, managers commit to investments accompanied by a set of potential risks that may threaten the company's future. This dialectic, which characterizes capitalism based essentially on the separation of management and shareholders, can lead to an antagonism of interests between owners and managers.

In this context, and in order to converge the objectives of all the company's players towards the creation of value, the company must adopt a high-performance governance system to help it achieve its objectives. Thus, the audit committee and internal audit are considered as pillars of

governance mechanisms that enable independent review of executive management decisions, and play a critical role in assessing the company's systems of internal control and risk management, with the aim of contributing to value creation [1]. Indeed, internal audit and the audit committee contribute to strengthening public and stakeholder confidence in the company by ensuring effective controls, transparency of operations and compliance with applicable regulations. They also enable us to assess the risk management process, thus ensuring healthier and more responsible management, and ultimately creating value.

In this respect, based on the IIA's definition, internal audit is involved in assessing risk management procedures and the internal control system, with the aim of contributing to value creation. In addition, the internal audit is considered to be a fundamental control system for verifying the effectiveness of the other controls in the organization [2, 3], and offers a basis for addressing any deficiencies that have affected the company's lines of defense. Indeed, as both these bodies consume resources for the organization, their *raison d'être* is closely linked to their ability to create and participate in the value-creation process [4]. With this in mind, the following question can be asked: How can internal audit and the audit committee contribute to value creation for unlisted organizations?

In an attempt to answer this question, the first section of this paper presents a literature review explaining the theoretical underpinnings of the link between internal audit, audit committees and value creation. Section 2 then looks at the research methodology and data collection. Section 3 will discuss the results of the empirical study. Finally, section 4 will summarize and provide the article's conclusions.

2. LITERATURE REVIEW

Fluctuations in the business environment have prompted global organizations to equip themselves with adequate governance mechanisms, enabling them to offer high-quality services that support firms in guaranteeing sustainability while at the same time creating shareholder value. At this stage, internal audit and the audit committee, as corporate governance bodies, stand out as mechanisms that effectively contribute to value creation [5].

Indeed, internal auditing is another of the main functions from which organizations benefit, helping them to control risks and internal processes [3]. This advantage can only be operational if the entity's audit committee acts to reinforce the work of internal audit, with the aim of perfecting the internal control process in place. For this reason, IIA includes in our definitions the concept of value creation through internal audit services, helping companies to realize their goals by evaluating their control, management, risk and governance systems. As well as the need to have a functional relationship with audit committees, ensuring their independence and objectivity.

On the other hand, the synergy between the committee and the internal audit structure makes a positive and significant contribution to the complex process of value creation. However, Abdullah, Ismail, and Smith (2018) [6] have argued that internal audit departments must add value to the company, while preserving their independence and integrity. This implies that the findings from internal audit reports are impartial, should benefit the business units, and can be used to enhance corporate value. Nevertheless, this situation cannot be encouraged unless there is a committee to reinforce the function, with sufficient technical skills to analyze the auditor's findings and support their implementation. On the other hand, Salem Oudat, J.A. Ali, and Helmi Qeshta (2021) [7] explained that the committee can mitigate audit risks, by managing conflicts that may arise between internal auditors and managers. This provides the audit department with extra leeway to conduct its assignments effectively, and to perfect the company's operational mode in order to add value.

Also, the strengthening of the internal audit department can only be achieved through the intervention of an audit committee in the event of the dismissal or appointment of the head of the internal audit function [5]. The aim is to eliminate the worry of possible sanctions being undertaken in the case of the enunciation of anomalies and failures carried out by the management bodies. As a result, the audit committee takes advantage of this situation by guaranteeing that the internal audit structure will act with a high degree of independence in determining the scope to be audited. Among other things, to ensure that the internal audit structure examines all risk points, the audit committee is empowered to oversee and approve the internal audit function's annual work program [5]. This offers the organization a considerable advantage, given that all its activities will be audited without any restrictions from the CEO. Indeed, the internal audit may raise faulty points on control, potentially resulting in value destruction.

However, approval of the internal auditor's annual work program and pressure to implement recommendations can only be achieved if the audit committee has the essential skills and knowledge in the fields of internal control, accounting and risk management. Indeed, the expertise of audit committees can significantly influence the internal audit structure, as the committee must possess the knowledge and understanding to debate with external and internal auditors [8]. However, the internal audit structure offers comfort to the audit

committee, through the skills and knowledge of the internal auditors in risk management and control, combined with independence and objectivity in carrying out their assignments. As a result, the skills and expertise of both bodies enhance their work to help the organization create value.

The synergy that exists between the internal audit structure and the audit committee is mainly due to the capacity and spirit of sharing and collaboration between the two parties, as well as their ability to assume their responsibilities and carry out their missions under the best possible conditions. This situation enables the organization to master risk management processes, obtain advice on specific issues and reinforce the controls in place. For modern companies, the integration and reinforcement of a resource-intensive function such as internal auditing brings superior benefits, and avoids any risk of value destruction. Ultimately, the literature argues that the relationship between the internal audit structure and audit committees and their contributions to value creation is not a one-way relationship, but rather a two-way interaction, with one reinforcing the other to ultimately result in effective control of the risks incurred, and the enhancement of internal control systems to participate, in a tangible way, in the value creation process.

In an empirical research context, the question of whether internal audit and the audit committee are players in value creation has been the subject of debate among several researchers, who confuse value creation with profitability. What's more, most studies have examined this contribution separately. In this context, one of the first studies to address this issue was by [3], who carried out an experimental study to assess the internal audit contribution to organizational efficiency. For the researchers, this effectiveness was synonymous with performance and value creation. The researchers selected 224 bank branches to undergo experimental tests involving the presence and absence of an internal audit assignment from head office, while monitoring branch performance over a one-year period. The results affirmed that audited branches were capable of performing better than their unaudited counterparts. They conclude that internal audit can boost the performance of the banks concerned. However, the findings of the study are not generalizable due to a number of restrictions, including the fact that the study focused on the banking sector only, and not on other industries. In particular, the performance measurement variables used are based primarily on management indicators such as accounting profit, and not on recent measures of value creation.

Nevertheless, Al Matari, Al Swidi, Fadzil (2014) [9] attempted to investigate the relationship between the characteristics of the board of directors, the audit committee and the management committee and the performance of 162 non-financial companies in Oman. Adopting a quantitative research methodology, the researchers concluded that there is a positive and significant relationship between, audit committee independence and Tobin's Q. On the other hand, the results affirm a positive but non-significant relationship between

audit committee size and corporate performance. Finally, a negative but non-significant association was revealed between audit committee meeting and company performance.

However, Y.A. Al Matari, Homaid and Alaaraj (2016) [10] examined the effect of audit committee effectiveness characteristics on the performance of 20 banks operating in Yemen during 2014. The results show a significant influence of audit committee characteristics on bank performance. However, the limitation of this study is the scale used to measure performance; the researchers used the Likert scale, which does not accurately give the true value created. In a similar vein, Rahman, Meah, and Chaudhory (2019) [11] explored the impact of audit committee characteristics on the performance of 109 listed public companies in Bangladesh, covering the fiscal years from 2013 to 2017. The results provided further evidence of the positive impact of audit committee size on business performance. A stronger audit committee, made up of a variety of qualified resources, enables the company to resolve more effectively the problems it frequently faces in the course of its business. Another important result of this research is the negative impact of audit committee meetings on business performance.

However, Dim and Joshua K.J. (2021) [12] used EVA and Tobin's Q to examine the effect of audit committee attributes on firm value in Nigeria. Using panel data econometrics on 37 listed companies in Nigeria, during a study period from 2010 to 2019, the results indicate that audit committee size has a significant and positive impact on EVA as measures of corporate value creation. Among other things, audit committee expertise has a significant impact on both Tobin's Q and the conventional 5% level. Finally, the gender diversity of the audit committee has a significant impact on both measures of value creation. In the Middle East, [7] conducted an investigation to analyze the relationship between audit committee characteristics and financial value creation in 8 companies trading on the Bahrain Stock Exchange, for the period 2012 to 2019. Based primarily on a quantitative methodology, the results showed the existence of a significant relation between the independence of the audit committee, audit committee meetings and value creation measured by ROE, ROA and EPS. On the other hand, the results showed no significant link between audit committee expertise, audit committee size and value creation. Based on these studies, the majority of researchers who have analyzed this relationship have focused on listed companies, using profitability indicators to measure value creation. However, these indicators can be subject to manipulation, as they are affected by the accounting standards and do not take into account the cost of capital [13].

Consequently, EVA can be a highly effective modern tool exploited as a measurement of an organization's value creation. EVA's calculation establishes coherence between the size of a firm's assets and the profitability it can generate. However, its application remains focused on companies listed on financial exchanges, as it incorporates the cost of capital into its calculations, which requires the calculation of a beta coefficient that measures the

sensitivity of a given security and that of the market. For unlisted companies, on the other hand, it is absolutely difficult to measure EVA. This is why alternatives have been exploited to calculate the beta of unlisted firms [14] and then calculate the EVA to measure the value creation of unlisted firms [15].

With this in mind, [16, 13] suggested a methodology for calculating EVA using accounting beta to calculate the cost of capital. Researchers have found that the EVA method using accounting beta has a good degree of reliability for effectively measuring the performance of unlisted companies. The use of this method recognizes the solidity of the financial information communicated by companies, making it an essential element in encouraging investment in unlisted firms. Based on these findings, the main objective of this study is to verify the contribution of internal audit and the audit committee to the creation of value for unlisted organizations. Indeed, demonstrating the use of EVA based on accounting beta to measure value creation will provide an alternative for researchers and specialists wishing to measure value creation for unlisted enterprises in developing countries like Morocco, characterized by a low number of listed companies and the predominance of unlisted enterprises in the economic sphere. Nevertheless, this research differs from other studies in the field. Firstly, the choice of variables and the representation of EVA using an accounting beta. Secondly, the econometric choice of our study reinforces the position of our result. Thirdly, this is the first study in Morocco to examine the contribution of both these bodies to value creation.

3. DATA AND METHODOLOGY

This study looked at 31 unlisted industrial public sector companies over the period 2015 to 2019, to analyze the contribution of internal audit and the audit committee to value creation. Nevertheless, for the EVA calculation, the accounting beta required a 10-year period from 2005 to 2014. The study period chosen intentionally excluded the pandemic years of COVID-19 in Morocco, as these years could introduce significant biases into the companies' results. Financial data were collected directly from the official websites of public companies. In addition, information on audit committees and internal audit was obtained from the governance reports of these public companies. To carry out our empirical study, we used two models, namely the static panel model (1), which gives us short-term results, and a dynamic panel (2), which offers more robust results by incorporating lags and instrumental variables (Table 1). The second model is estimated using the Generalized Method of Moments, given its efficiency.

The econometric models are Equations (1) and (2):

- Static panel:

$$EVA_{it} = \beta_1 TCA_{it} + \beta_2 ECA_{it} + \beta_3 ICA_{it} + \beta_4 FDAI_{it} + \beta_5 IAI_{it} + \beta_6 EAI_{it} + \beta_7 MRAI_{it} + \beta_8 TAI_{it} + \beta_9 FS_{it} + \varepsilon_{it} \quad (1)$$

- Dynamic panel:

$$EVA_{it} = \beta_1 EVA_{it-1} + \beta_2 TCA_{it} + \beta_3 ECA_{it} + \beta_4 ICA_{it} + \beta_5 FDAI_{it} + \beta_6 IAI_{it} + \beta_7 EAI_{it} + \beta_8 MRAI_{it} + \beta_9 TAI_{it} + \beta_{10} FS_{it} + \varepsilon_{it} \quad (2)$$

Table 1. Variable measurements

No.	Variables	Method of Calculation	Code
Dependent variable			
1	EVA - based on the accounting beta-	$EVA = (NOPAT) - [(CE) \times WACC]$ (based on the accounting Beta) The cost of equity is calculated by using the Accounting Beta: Beta coefficient: $Cov(R_{ROA}, R_{Mm}) / VAR(R_{Mm})$	EVA
Independent variable			
2	Independence of the Audit Committee	1 if at least two-thirds of the Audit Committee are non-executive members and 0 if not	ICA
3	Audit Committee expertise	Number of Audit Committee members with finance, management, audit or accounting backgrounds	ECA
4	Size of Audit Committee	Total number of Audit Committee members	TCA
5	Internal audit independence	1 if the internal auditor is independent and 0 if not	IAI
6	Size of internal audit department	Number of internal auditors in the internal audit department	TAI
7	Internal auditor experience	Number of years' experience of the head of the internal audit department.	EAI
8	Implementation of recommendations	Percentage of recommendations made by the internal audit department implemented, by year	MRAI
9	Internal audit department training	Takes values from 1 to 7 depending on the type of training in the internal audit department	FDAI
Control variable			
10	Organization size	Logarithm of total assets	FS

4. EMPIRICAL RESULTS

4.1. Descriptive Statistics

Our static analysis will be divided into two stages, the first for quantitative variables and the second for qualitative variables. For quantitative variables, the descriptive statistics are presented in Table 2.

Table 1. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
EVA	150	11.410	8.595839	0	21.00028
TCA	150	4.8585	1.645399	3	5
ECA	150	2.1333	0.967017	0	4
EAI	150	8.780	6.222788	0	27
TAI	150	3.3400	2.154533	1	11
FS	150	21.586	1.791895	15.71747	25.63281

To this end, we have eliminated 5 observations, as they constitute outliers that may bias the empirical analysis. Based on the descriptive statistics, we note that, with the exception of the EVA and Internal Audit Experience (EAI) variables, the variables in the model are regularly clustered around their means, as demonstrated by a low standard deviation. While the statistics for the EVA and EAI variables allow us to observe dispersion between the companies in the study, this is explained by the existence of companies with higher value creation than the sample average.

4.2. Multicollinearity Test

After conducting the multicollinearity test, it is observed that the tolerance values span from 0.472154 to 0.775236, and the corresponding VIF values range

between 1.29 and 2.12. Notably, all tolerance values surpass 0.1, and VIF values remain below 5. These findings align with the recommended range specified by [17] for both tolerance and VIF values of variables. Consequently, it can be inferred that there is no discernible risk of multicollinearity among the variables.

Table 3. Multicollinearity test

Variable	VIF	Tolerance Value
IAI	2.12	0.472154
ICA	2.11	0.474615
TCA	1.84	0.542031
MRAI	1.80	0.555516
TAI	1.75	0.570187
ECA	1.53	0.655666
FS	1.38	0.724122
FDAI	1.37	0.730781
EAI	1.29	0.775236
Mean VIF	2.86	

4.3. Modelling the Static Panel Model

4.3.1. Specification Test

To apply econometrics on panel data in this study, it is crucial to validate the "homogeneous or heterogeneous" specification of the data-generating process, as emphasized by [17]. Within this context, several tests exist to determine the suitable model selection, such as the Hsiao test and the Fisher test [18]. In this instance, we opted for the Fisher test due to its swift application and robustness. This test facilitates the decision on whether to estimate our models using panel data. The Fisher test results are as follows:

$$F(29, 109) = 2.52$$

$$Prob > F = 0.0003$$

The Fisher test results indicate a probability of 0.0003, which is below the 5% threshold. Consequently, based on the Fisher test outcome, which supports the individual effects model, we conclude that it is appropriate to estimate our model using panel data [17].

4.3.2. Hausman Test

For determining the model selection, we employed the Hausman test. The Hausman specification test is a versatile test, commonly used in econometrics, which can be applied to a variety of specification problems. Its main application, however, concerns specification tests for individual panel effects. In this respect, the test result is as follows:

$$Chi2(9) = 13.86$$

$$Prob > chi2 = 0.1275$$

According to the results of the Hausman test, the associated probability is 0.1275, exceeding the 5% threshold. This suggests that the random-effects model is the best option [17].

4.3.3. Testing the Heteroscedasticity of Residuals

To detect the heteroscedasticity problem, we used the Breusch-Pagan test [18]. To this end, the test results are:

Variable	Chi-2	Prob
Residus	0.49	0.4852

Upon analyzing the outcome of the heteroscedasticity test, it is observed that the associated probability exceeds 5%. Consequently, we can infer that there is an absence of heteroscedasticity in the residuals.

4.3.4. Autocorrelation Test of Residuals

Residual autocorrelation, as defined by [18], refers to the correlation between error terms in relation to their previous values, suggesting a correlation among residuals over time. To explore this aspect, our research utilized the Wooldridge test to examine the autocorrelation of our model's residuals. The results of the Wooldridge test are: Variable $F(1, 29) Prob > F$ Residus 0.143 0.2633

In the context of the error autocorrelation test, the associated probability for the test statistic is greater than 5%, specifically 0.2633. Therefore, it is reasonable to conclude that the residuals do not exhibit autocorrelation. The static panel model results are presented in the accompanying Table 4, offering a comprehensive overview of the outcomes. The table includes key indicators and coefficients derived from the model, shedding light on the relationships between the variables under consideration. These results are instrumental in understanding the impact and significance of the explanatory factors on the dependent variable within the context of the static panel framework.

Table 4. Analysis of the static random-effects panel

EVA	Coef. (Std. Err.)	Z	$P > t $
TCA	-0.2026438 (.3726694)	-0.54	0.587
ECA	1.309484** (.5503834)	2.38	0.017
ICA	0.8575917 (1.40432)	0.61	0.541
FDAI	-0.5121433* (.298279)	-1.97	0.086
IAI	1.528282 (1.237524)	1.23	0.217
EAI	-0.0816929 (.088477)	-0.92	0.356
MRAI	1.251974*** (.5331388)	13.60	0.000
TAI	0.1488953 (.295843)	0.50	0.615
FS	0.5407488* (.3196142)	1.98	0.091

Source: STATA 15 output. *** Significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

On the other hand, the results of the model estimation based on random effects show that the variables ECA, FDAI, MRAI and FS act significantly on value creation. For these variables, critical probabilities are less than 5% and 10%, and their obtained statistics are greater than 1.96.

4.4. Modeling the Dynamic Panel Model

The second model used in this research is the dynamic panel. In this framework, we prefer to use the GMM (Generalized Method of Moments) estimator in system rather than the GMM estimator in first differences because [19] argue that the GMM estimator in system is more efficient. To this end, the instrumental variables include the lag of EVA, the lag of the implementation of recommendations, the independence of the audit committee, the size of the internal audit department, and the size of the organization. However, the variables chosen as instrumental variables in our study are the size of the audit committee, the experience of internal audit, the experience of the audit committee, the delay in the formation of the internal audit department.

The qualification of the internal audit department, the delay in the expertise of internal audit, the independence of the internal auditor, the delay in the age of the organization, the number of missions carried out by the internal auditor during the year, the delay in the use of international standards in the work of auditors, the delay in the frequency of board meetings, the number of board meetings with the head of the internal audit structure, management support, and finally, the frequency of risk assessment. To use the generalized method of moments in the system, it is essential to verify two crucial tests, namely the Sargan and Hansen overidentification test, and the Arellano and Bond test for autocorrelation on the error term [19].

4.4.1. Sargan and Hansen Test

Sargan and Hansen's over-identification test is used to assess the validity of lagged variables as instruments. It is based on the assumption that if the instruments are valid, the error term must not be correlated with the set of exogenous variables. In our case, and in order to use the GMM method in a system to analyze the contribution of internal audit and the audit committee to value creation, we have resorted to these tests, so the results of the tests are presented as follows:

Tests Chi^2 Prob > Chi^2
 Test de Sargan 17.08 0.252
 Test de Hansen 8.69 0.851

The Sargan and Hansen over-identification tests validate the null hypothesis that the instruments used in the estimation in our model are validated, as demonstrated by a chi^2 probability for these two tests that is greater than 5% and 10%.

4.4.2. Arellano and Bond Test

Arellano and Bond's test is based on two tests: the first-order error autocorrelation test $AR(1)$, which is concerned with determining the absence of first-order autocorrelation of the errors in the level equation. As well as the second AR test (2), which shows the absence of second-order serial correlation of difference errors. Within this framework, the test results are presented as follows:

Tests z $Pr > z$
 $AR(1)$ -2.27 0.023
 $AR(2)$ 1.44 0.151

However, the results of the Arellano and Bond autocorrelation tests indicate that the first-order autocorrelation hypothesis $AR(1)$ is rejected. This is demonstrated by the low critical values associated with these tests, which are below 5% and 10%. Furthermore, the presence of second-order autocorrelation $AR(2)$ is systematically rejected, as the associated plus-value exceeds the 5% and 10% thresholds. Thus, the estimation of the dynamic panel model using the GMM method in a system is presented in Table 5. Indeed, the estimation of the GMM-based model in a system gave the result that the delay of EVA, the experience of the audit committee, the independence of the internal auditor, the implementation of internal audit recommendations, the size of the internal audit department and the size of the organization have a positive and significant relationship on value creation. For these variables, their critical probabilities are below 5% and 10%.

Table 5. Analysis of the dynamic panel model with the GMM method in a system

EVA	Coef. (Std. Err.)	Z	P> t
EVA ₁	0.0527405* (0.050117)	1.05	0.093
TCA	-0.033704 (0.577895)	-0.06	0.953
ECA	1.511763*** (0.461962)	3.27	0.001
ICA	-3.2261 (2.155217)	-1.50	0.134
FDAI	-5.341227 (0.476228)	-1.12	0.262
IAI	.490183*** (2.535517)	2.95	0.003
EAI	-.074939 (0.105540)	-0.71	0.478
MRAI	0.806638*** (1.485899)	2.56	0.010
TAI	0.9726984** (0.397011)	2.45	0.014
FS	0.598269** (0.300967)	1.99	0.047

Source: STATA 15 output. *** Significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.

Comparing these results to the conclusions in the literature allows us to engage in a discussion to substantiate our findings from a theoretical perspective. Regarding the independence of the audit committee, the results obtained by both models, namely the static panel model and the dynamic panel model, confirm that the independence of the audit committee has no significant relationship with value creation. This result aligns with the assertions of [23] and diverges from the findings of [21, 22]. Based on the literature, strengthening the independence of audit committees can enhance the efficiency and productivity of the committee by ensuring better quality of internal and external audits, as well as greater independence in the appointment and remuneration of auditors. This underscores an increased need to effectively monitor the behavior of executives.

Indeed, committee independence allows for in-depth analysis of financial data and close supervision of management activities. The goal is to protect the interests of owners against the actions of agents, ensuring value creation [20]. However, the literature indicates that the presence of executive members (non-independent) provides several advantages to the organization; dependent directors have a deeper understanding and knowledge of the organization, enabling them to make more appropriate decisions [22]. Their enhanced knowledge of corporate systems allows them to strengthen established controls and better contribute to value creation.

On the other hand, the variable related to the expertise of the audit committee has a positive and significant impact on value creation according to the results of both models. This result has been confirmed by several authors such as [12, 21, 22]. However, [7] did not find a relationship between the expertise of the audit committee and value creation. Indeed, the presence of experts in finance, audit, or accounting within the audit committee can contribute to improving the internal control of the company. Furthermore, it allows for a better understanding and support of recommendations made by auditors. Moreover, according to agency theory, committee members with expertise in audit, finance, and accounting can contribute to improving the quality of the board's work. Their expertise indeed illuminate's decision-making and ensures the production of quality, transparent, and effective reports, resulting in improved performance and value creation within the organization [7].

As for the size of the audit committee, the literature shows that the audit committee must have a sufficient number of members to carry out its monitoring tasks related to the decisions of responsibility center managers in terms of audit and internal control. In this context, [23] posit that the presence of a large committee plays a significant role in monitoring management actions, leading to improved performance and value creation. However, our empirical results on the size of the audit committee indicate no relationship between the size of the audit committee and value creation in both models, the static and dynamic panels. This assertion confirms the results of researchers such as [7, 9, 20, 21] who found no relationship between the size of the audit committee and value creation. Conversely, other researchers found a positive and significant relationship between these two variables, such as [9, 24]. Indeed, the literature indicates that the size of the audit committee, whether large or small, can jeopardize the effectiveness of the committee. However, a committee composed of multiple directors tends to be less collaborative than smaller ones. In this regard, a large size can generate discussions and disagreements in collective decision-making, leading to a loss of resources. Conversely, a committee with a limited number of members may reduce the effectiveness due to a lack of diversity in skills and experiences.

Moreover, the results regarding the independence of internal auditors are mixed between the models. For the first model related to the static panel, the result indicates no relationship between the independence of internal audit and value creation. In contrast, the second model based on the dynamic panel reveals a positive and significant relationship between the independence of the internal audit department and value creation. Overall, we accept this latter result. In this regard, numerous researchers have arrived at this postulate, such as [25, 26, 27]. Contrary to [28], who found no relationship between these two variables. Referring to theoretical foundations, independence reflects the strength of the audit function to uncover all dysfunctions without concern or prejudice. An internal audit function that carries out its missions independently can unveil areas of risk that may hinder goal achievement. This addition allows the auditor to contribute effectively to value creation for the organization. Moreover, this independence quality has been emphasized by international internal audit standards, which play a significant role in its preservation.

For the size of the internal audit department, the result of the first model shows no relationship between the size of the internal audit department and value creation, while for the second model, the result indicates a positive and significant relationship between the size of the internal audit department and value creation. In this context, and given the robustness of the second model, we acknowledge the positive impact of the size of internal audit on value creation. Indeed, this result has been confirmed by several researchers in the field, such as [26, 29] found no significant relationship. In this context, for internal audit departments to carry out their roles effectively, resources must be allocated. One of the main resources that the

internal audit department relies on is the human factor. Auditors cannot perform missions that add value to the organization if they are overwhelmed by time constraints and a lack of sufficient human resources. In this regard, when the size of the internal audit department increases, the auditor takes the time to analyze identified risks and anomalies to formulate quality recommendations that will help the structure improve its internal control and easily achieve its goals.

Moreover, the results of both models did not show a significant relationship between the endogenous variable related to value creation and the exogenous variable related to the experience of internal audit. In perfect coordination with the results of [28], who found no significant relationship, but in contradiction with the results of [29]. Indeed, the idea that the ability of an experienced auditor to make higher quality decisions than inexperienced auditors has been highlighted [29]. Furthermore, the experience of the auditor can play a decisive role in the perception of the scope and extent of the internal audit mission. A head of the internal audit department with desirable experience can effectively manage and guide auditors in the execution of their missions, contributing to value creation. However, experienced auditors may have overconfidence, which could lead to judgment problems. On the other hand, less experienced auditors reduce their margins of confidence, widen their samples when choosing audit missions to avoid potential errors, and contribute to strengthening internal control.

For the explanatory variable auditor training, the result of the first model affirms the existence of a negative and significant relationship between the training of internal auditors and value creation. However, the second dynamic panel model refutes this result and finds no relationship between the training of the internal audit department and value creation. This result contradicts the findings of [30], who posit that the training of members of the internal audit department influences value creation. Regarding the exogenous variable implementation of recommendations, the results of both tests converge to a single result confirming that the implementation of recommendations from the internal audit department positively and significantly affects value creation. This result confirms the findings of researchers such as [25], who confirm that the level of implementation of recommendations improves the value of the organization.

Indeed, the essential product of the internal audit department is not limited to the mere detection of anomalies but producing improvement paths that can enrich the process and strengthen the controls already in place. In this context, the strength of an internal audit department is perceived in the rate of implementation of recommendations formulated during the year; an organization that implements the majority of recommendations has a high probability of improving its operating procedures and positively impacting its value. Therefore, in response to the central issue of our research, we can confirm the positive contribution of internal audit and the audit committee to value creation.

5. CONCLUSIONS

Based on the theoretical and empirical underpinnings of the value creation concept, and applying two panel data models, namely the static panel estimated using the random effects method and the dynamic panel estimated using the generalized method of moments, our empirical model attempted to explain the contribution between the internal audit and audit committee variables for a group of 31 public companies between 2015 and 2019. Within this framework, preliminary and validity tests for both models enabled us to give greater reliability to the results obtained.

Indeed, the results of the two models showed the significance of variables such as committee expertise, internal auditor independence, implementation of internal audit department recommendations, size of the internal audit structure and size of the public company on the endogenous variable represented by value creation. On the other hand, the size of the audit committee, the independence of the audit committee and the experience of the internal audit department do not have a significant relationship with value creation. While the variable formation of the internal audit department showed a significant relationship with the dependent variable in the first model, the second model did not.

Among other things, a discussion of the results was carried out to confirm or refute our research hypotheses. In fact, this discussion is supported by theoretical underpinnings that either accept or contradict these results. In addition, a discussion specific to the case of public establishments and companies is carried out, in order to demonstrate the importance of internal audit and the audit committee in the value creation process. Finally, the research provides important conclusions for researchers and practitioners alike. Indeed, those interested in studying financial performance or value creation can exploit EVA based on accounting beta instead of using profitability indicators that do not take into account the cost of capital. Secondly, the thesis provides a solid underpinning for internal audit and the audit committee as mechanisms that contribute to value creation. Thirdly, it provides a methodological foundation, especially in the econometric aspect, for future researchers interested in the same issues.

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