

Does the Internal Audit Function Play a Role in Mitigating Earnings Management?

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This paper aims to investigate the effect of the characteristics of the internal audit function (IAF) on earnings management (EM) for a sample of 27 Tunisian listed companies. The authors employed the Correlated Panels Corrected Standard Errors model to estimate the regression equation. The results showed that EM is negatively associated with internal audit effectiveness, frequency of audit committee meetings with Chief Audit Executives (CAEs), the partial outsourcing of internal audit, and the firm's size. Moreover, the authors found a positive relationship between EM and the use of IAF as a training ground for management and the private sector. This study is important to academics, regulators, and policymakers in introducing new governance reforms to strengthen the IAF as an important internal governance mechanism to reduce earnings management practices in emerging countries. The results also provide useful information for investors to examine the effect of internal audit characteristics on earnings management.

Keywords: earnings management, internal audit, emerging economies

Introduction

The main objective of financial statements is to provide users with useful information to facilitate the decision-making process, particularly with regard to investments. Financial reporting should be relevant and reliable for protecting the interests of stakeholders. The management is responsible for the preparation and presentation of financial statements. However, the inherent flexibility in many accounting standards enables managers to take advantage of it and misrepresent information with the intent of obtaining private benefits.

This management intervention process is known as earnings management (EM) (Davidson, Goodwin-Stewart, & Kent, 2005). One of the most common definitions of the EM phenomenon is presented by Healy and Wahlen (1999, p. 368), who suggest that: [...] earnings management occurs when managers use judgment in financial reporting in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers. Managers recognize EM practices as attempts to influence or manipulate reported accounting earnings to increase executive compensation.

According to agency theory, managers are more likely to look out for their self-interests rather than shareholders' interests (Jensen & Meckling, 1976). Thus, agency theory suggests that corporate governance mechanisms should align agents' incentives with the interests of principals and alleviate the conflict of interests and any opportunistic behavior resulting from it.

Therefore, several recent regulatory reforms have been implemented in many countries to strengthen the role of corporate governance mechanisms in improving financial reporting quality, such as the Sarbanes-Oxley Act in the USA, 2002; the financial security law in France, 2003; and Financial Security Law No. 2005-96 in Tunisia, 2005.

It is commonly accepted that the internal audit function (IAF) is an important mechanism of corporate governance that helps the organization achieve its objectives and safeguards shareholders' interests (Alzeban, 2019; Gras-Gil, Marin-Hernandez, & Lema, 2012). Hence, the IAF plays a significant role in monitoring management practices, including those related to financial statements (Prawitt, Smith, & Wood, 2009; Abbott, Daugherty, Parker, & Peters, 2016; Qaid & Alhamidi, 2020; Ghaleb, Kamardin, & Al-Qadasi, 2020).

For instance, the International Standards for the Professional Practice of Internal Auditing (ISPPIA) state that the IAF should evaluate and contribute to improving the effectiveness of controls relating to the reliability and integrity of financial information. Given these responsibilities, the IAF can enhance a company's financial reporting quality and constrain its EM activities (Prawitt et al., 2009; Klamut, 2018).

Therefore, it would be interesting to analyze the effect of IAF on EM. Most empirical studies that have investigated EM in the Tunisian context have focused on the effects of audit quality, ownership structure, political costs, and internal control (Oussii & Boulila, 2018; Guidara, Achek, & Dammak, 2016; Attia, Lassoued, & Attia, 2016; Lassoued, Attia, & Sassi, 2017).

Nevertheless, these studies ignore the role of the IAF in guaranteeing the reliability of financial statements. Few studies have examined the impact of IAF on EM in developed (Prawitt et al., 2009; Garcia, Barbadillo, & Perez, 2012; De Simone & Rich, 2020; Ismael & Kamel, 2021), and emerging countries (Al-Shetwi, Ramadili, Chowdury, & Sori, 2011; Johl, Johl, Subramaniam, & Cooper, 2013; Alzoubi, 2019; Ghaleb et al., 2020). However, there is no conclusive empirical evidence of the consequences of IAF characteristics on the quality of financial statements.

This raises the following question: Does IAF reduce earnings management?

To answer these questions, we conducted an empirical study using data obtained from 27 Tunisian listed companies for the period 2017-2022. We wanted to determine the effects of characteristics of internal auditing on earnings management. Our study contributes to the auditing literature by extending the research into the effect of IAF on EM in the context of African emerging countries.

The remainder of this paper is organized as follows. Section 2 provides a brief overview of the internal audit regulation in Tunisia. Section 3 discusses the related literature and develops our research hypotheses. Section 4 describes the empirical design. Section 5 presents the results and their interpretations. Finally, Section 6 summarises and concludes the research.

Internal Audit Regulation in Tunisia

Tunisia is the first emerging economy from the MENA (Middle East and North Africa) region, which opened up to global competition through the entry into force of the free trade agreement concluded with the European Union in 1995. Consequently, Tunisian regulators have issued laws aiming to improve the transparency of financial statements by enforcing the role played by the internal audit as a cornerstone of the corporate governance system.

For instance, Law No. 94-117 of November 14, 1994, reorganizing the financial market, requires all listed firms on the Tunis Stock Exchange to have an IAF. Furthermore, according to Law No. 2001-65 of July 10, 2001,

credit institutions, banks, and credit institutions have to set up a permanent internal audit unit. In 2005, the Tunisian Government has implemented the Financial Security Law No. 2005-96 of October 18, 2005, inspired by the U.S Sarbanes-Oxley Act. This law requires that all companies make public offerings and companies where the total balance sheet for consolidated financial statements exceeds 50 million Tunisian dinars to maintain an audit committee that approves the appointment of internal auditors and supervises plans, budgets, and internal audit works.

More recently, the Tunisian Corporate Governance Code (published in 2012) recommended that the IAF should assess the risks associated with each activity within the company (operational, financial, administrative, etc.), including those related to the financial reporting process, and ensure that management actions are consistent with organizational objectives.

Literature Review and Hypotheses Development

Internal Audit Effectiveness

Effective IAF adds value to an organization by helping management and the board of directors assess and increase the effectiveness of internal control, risk management, and corporate governance processes (Yee, Sujana, James, & Leung, 2008; Eulerich & Eulerich, 2020). Through this role, the IAF has been recognized as a corporate governance mechanism which is critical to achieving organizational objectives and preserving the shareholders' interests (Gramling, Maletta, Schneider, & Church, 2004; Sarens, Abdolmohammadi, & Lenz, 2012; Krupa, 2020).

The Institute of Internal Auditors (IIA, 2012) states that since the IAF has in-depth knowledge of many operations and key processes of the organization, it can be highly effective in detecting fraud in financial reporting and reviewing fraud prevention processes. Hence, an effective IAF may play a vital role in maintaining the credibility of a firm's financial statements and constraining the EM.

This argument has been supported by several studies that provide evidence of a negative association between IAF and EM (Ege, 2015; Abbott et al., 2016; Alzeban, 2019; Ismael & Kamel, 2021). For example, Coram, Ferguson, and Moroney (2008) demonstrate that Australian and New Zealand organizations with an IAF are more likely to detect and report fraud caused by asset misappropriation than those without. Further studies by Church, McMillan, and Schneider (2001) and Asare, Davidson, and Gramling (2008) found that IAF is sensitive to elements that may lead to fraudulent financial reporting in U.S. companies. Thus, internal auditors are more likely to increase budgeted audit hours when management has a high incentive to misreport financial information.

Similarly, Al-Rassas and Kamardin (2016) find that the IAF is related to greater earnings quality for a sample of companies listed in Malaysia. Their findings are also supported by Garcia et al. (2012) and Abbott et al. (2016), who reported that high-quality IAF can improve earnings quality and provide greater transparency in Spanish and U.S. listed companies, respectively. Similarly, Gras-Gil et al. (2012) found that greater involvement of the IAF in reviewing financial reporting leads to improved quality reporting in Spanish banks. In addition, using a sample of U.S. companies, Lin, Pizzini, Vargus, and Bardhan (2011) showed that various internal auditing activities (i.e., the use of quality assurance techniques and auditing activities relating to financial reporting) can reduce the likelihood of the disclosure of material weaknesses.

Prawitt et al. (2009) conducted a study on the effects of IAF quality on EM in US companies. They found that a high-quality IAF is associated with a lower level of EM, and thus can mitigate aggressive accounting behavior by management. In a similar study of Malaysian companies, Johl et al. (2013) showed a negative and

significant relationship between IAF quality and abnormal accruals. Alzoubi (2019), based on a sample of firms listed on the Amman Stock Exchange, shows that IAF quality reduces the level of discretionary accruals as a proxy for EM. Moreover, Aloudat et al. (2020) indicate that an effective IAF reduces corruption in public joint-stock companies in Saudi Arabia through the application of international standards for internal auditing.

Therefore, the following hypothesis is developed:

H1. The effectiveness of the IAF is negatively associated with EM.

Interaction Between Internal Audit and Audit Committee

The audit committee and the IAF are crucial for effective corporate governance, working interdependently within an organization. Law No. 2005-96 in Tunisia mandates the audit committee to protect shareholders' interests, while the IAF aids in improving internal control effectiveness and fraud detection.

Researchers and regulators emphasize the importance of a close interaction between internal audit and audit committee to enhance the company's financial reporting process and mitigate the use of illegitimate EM (Financial Reporting Council, 2012; Garcia et al., 2012; Al-Rassas & Kamardin, 2016; Alzeban, 2019; Alzoubi, 2019).

The audit committee should hold regular meetings with the CAE to discuss audit process, internal controls, and financial statements on a timely basis (Scarbrough, Rama, & Raghunandan, 1998). This is essential for effective communication with the IAF. Regulatory reforms like BRC (1999), Law No. 2001-65, and IIA (2003) mandate a minimum of four annual meetings.

According to James (2003) and Xie, Davidson, and DaDalt (2003), the meeting frequency between members of the audit committee and the CAE is more able to prevent fraudulent reporting in U.S listed firms. Furthermore, Alzoubi (2019) has found that the number of meetings between IA and audit committee improves the financial reporting quality and reduces discretionary accruals for a sample of Jordanian listed firms. Similarly, a study conducted on listed firms in Nigeria showed that the audit committee mediates the relationship between the audit firm and real earnings management (Ibrahim, Mansor, & Ahmad, 2020).

Based on the regulators' recommendations and previous studies, the following hypothesis is developed:

H2. The interaction between the IAF and audit committee is negatively associated with EM.

Management Support for Internal Audit

Internal auditing supports senior management by providing assurance and consulting, activities, improving internal control and risk management, cooperating with external auditors, and serving as a training ground for future managers (Sarens & Beelde, 2006; Eulerich, Kremin, & Wood, 2019; Weekes-Marshall, 2020). Moreover, senior management must provide with the IAF the necessary resources, including training budgets, qualified internal auditor staff, organizational independence, and implementing IA recommendations (IIA, 2012).

There have been many studies that have highlighted the positive impact of management support on the effectiveness of IAF (Halimah, Othman, Othman, & Kamaruzaman, 2009; Cohen & Sayag, 2010; Alzeban & Gwilliam, 2014). However, there has been limited research examining the association between management support for internal audit and EM. For instance, Alazzabi, Mustafa, and Karage (2020) showed that adequate top management support improves the chances of internal auditing in detecting and limiting the risk of fraud in the Libyan banking sector.

Based on this analysis, senior managers who support IAF have less incentive to manipulate earnings. Hence, the following hypothesis is proposed:

H3: The management support for internal audit is negatively associated with EM.

Internal Audit Outsourcing

Internal audit has traditionally been managed by in-house employees, but many companies now outsource it, either entirely or partially, to an external provider, typically a public accounting firm. Outsourcing arrangements of the IAF offer specialized knowledge, objectivity in decisions, and cost savings. However, outsource providers have less in-depth knowledge of the company, limiting their ability to detect fraud and identify critical issues from employees, despite potential benefits (Khan et al., 2020).

Previous studies show mixed results on the relationship between outsourcing arrangements and EM. Some researchers suggest that external auditors perceive outsourced internal audit quality as superior to in-house audit, leading them to rely more on it when management's risk and opportunistic behavior are high (Carey, Subramaniam, & Ching, 2006; Desai, Gerard, & Tripathy, 2011). For instance, Al-Rassas and Kamardin (2015) indicate that outsourced IAF in Malaysian listed companies reduces discretionary accruals and effectively prevents fraudulent financial reporting compared to in-house internal auditors. Similarly, Baatwah, Omer, and Aljaaidi (2021) reveal that the expertise of an external IAF provider reduces real earnings management in Omani firms.

On the other hand, a study conducted by Coram et al. (2008) found that organizations keeping their IAF in-house are more likely to detect and self-report fraud through misappropriation of assets than those outsourcing entirely. This finding is supported by other studies, such as Mansor, Che-Ahmad, Ahmad-Zaluki, and Osman (2013), Johl et al. (2013), Ghaleb et al. (2020), and Leng and Abdul Jalil (2022) which found higher EM in Malaysian firms outsourcing significant internal audit activity.

On the basis of the above discussions, our expectation is that in-house internal auditors will be more likely to detect fraud and to enhance the credibility of the financial statements due to their in-depth knowledge of the entity. Therefore, the next hypothesis of the study is the following:

H4: The outsourcing of internal audit is positively associated with EM.

Internal Audit Function as a Management Training Ground

Using IAF as a management training ground (MTG) is a common practice in developed countries. Companies typically use IAF as a MTG with two approaches: hiring new graduates for line management positions, or assigning existing employees to work in IAF for a period before being cycled back into management, often in a higher operational position (Goodwin & Yeo, 2001).

The use of IAF as a MTG in organizations can lead to the development of well-rounded managers with a deep understanding of accounting and control systems, but it may also result in impaired independence and objectivity of the IAF and reduced incentives for internal auditors to improve their skills if the position is seen as a stepping stone to other roles (Cohen & Sayag, 2010; Eulerich et al., 2019).

Prior researchers have demonstrated that internal auditors used as a MTG are less objective and more likely to agree with management's aggressive revenue recognition policies when they expect to move into senior management positions in U.S. firms. For instance, studies conducted by Messier, Reynolds, Simon, and Wood (2011) and Christ, Masli, Sharp, and Wood (2015) in the U.S. showed that companies using their IAF as training grounds are more likely to manage earnings and have lower financial reporting quality.

Furthermore, other studies suggest that MTG internal auditors are more competent than non-MTG auditors due to their motivation to impress management and increase the likelihood of promotion from the IAF to a

management position (Messier et al., 2011). A further study by Ege, Seidel, Sterin, and Wood (2022) indicated that firms with managers that have internal audit experience are associated with lower real earnings management.

Based on the above analysis, we predict the following hypothesis:

H5: The use of the IAF as a MTG is positively associated with EM.

Research Design

Sample and Data Collection

The initial sample contains all companies (82) listed on the Tunisian Stock Exchange (TSE) for the years 2017 to 2022. Our sample choice was limited to listed companies because in the Tunisian context, only listed companies are obliged to have an IAF and this in accordance with the Law No. 94-117 of November 14, 1994, on the Reorganisation of the Financial Market.

From this initial sample, we exclude 27 financial companies because they have special legislation in the preparation of their financial statements, 14 companies with incomplete online annual reports among the study period, and 14 companies which have chosen not to participate in the survey to provide necessary internal audit data. As a result, the final sample consists of 27 non-financial companies with a total of 162 firm-year observations. Given the smallness of the sample, we use a panel data regression analysis.

The data for this study were obtained from two main sources. First, financial data consisting of EM and control variables were extracted from the annual reports collected from the stock market website (www.bvmt.com.tn). Second, data on characteristics of the internal audit come from a questionnaire survey, which was sent to 41 non-financial listed companies (the sample after deduction of 27 financial companies and 14 companies that miss data in financial statements).

Consistent with prior internal audit research, the questionnaire survey was sent to CAEs (Chief Audit Executives) (Prawitt et al., 2009; Pizzini, Lin, Vargus, & Ziegenfuss, 2015). Our questionnaire consisted of two sections: The first is demographic information and the second is a set of questions related to the firm's IAF characteristics: internal audit effectiveness, internal audit outsourcing, using IAF as a MTG, interaction with the audit committee, management support for IAF.

Before sending the survey, we ran a pre-test with two academics and two CAEs from IIA-Tunisia. The feedback led to improving the intelligibility of the questionnaire survey. In total, 41 questionnaires were distributed. 27 usable responses were received from these 41 companies representing 65.8 per cent of all listed companies on the TSE. This response rate is fairly reasonable when compared with rates achieved by prior related studies (Alzeban & Sawan, 2015 (34 per cent); Zgarni, Hlioui, & Zehri, 2016 (36 per cent); Alhajeri, 2017 (28 per cent); Oussii & Taktak, 2018 (72.8 per cent)).

The respondents include 20 men and 7 women having between 5 and 20 years of experience. All respondents hold a diploma in accounting or business administration, and nine of them are certified internal auditors or certified public accountants.

The table below summarises the sample selection procedure and shows a breakdown of the sampling design.

Table 1

Sample Selection Procedure and Industry Breakdown

Panel A. Sample selection

Total listed firms in the sample 2017-2022

82

Less financial firms	(27)
Less firms with missing data	(14)
Number of firms used in the survey	41
Firms deleted because of non-responses to the survey	(14)
Final sample	27
Panel B. Sample distribution by industries	
Industry	Firms %
Materials	2 7.40
Industrial products	3 11.11
Transport	5 18.51
Telecommunication services	4 14.81
Oil and gas	4 14.81
Health care	2 7.40
Building	3 11.11
Commercial	4 14.81
Total	27 100

Variables Measurement

Measurement of dependent variable (discretionary accruals: DA). Our study uses discretionary accruals as the dependent variable to estimate EM. The estimation of discretionary accruals as the proxy for EM has been applied extensively in many previous researches in accounting literature (Davidson et al., 2005; Prawitt et al., 2009; Ye, 2014; Alzoubi, 2019).

The prior literature suggests that managers use accruals mostly to manipulate earnings because accruals are hard to detect by external stakeholders and they do artificially inflate or deflate earnings by the use of income-decreasing accruals or income-increasing accruals, which involves making opportunistic estimates. In this study, we utilise the Jones (1991) model, modified by Kothari, Leone, and Wasley (2005) considered by many researchers as a suitable EM measure in the Tunisian context (Halioui & Jerbi, 2012; Azibi & Rajhi, 2013; Lanouar, Riahi, & Omri, 2013; Kouaib & Jarboui, 2014; Attia et al., 2016).

Under this model, discretionary (abnormal) accruals are calculated as the difference between the total accruals of the company and its non-discretionary accruals (NDAC), as estimated from the following equation:

$$\frac{TA_{i,t}}{AT_{i,t-1}} = \beta_0 + \beta_1 \left(\frac{1}{AT_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t}}{AT_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{AT_{i,t-1}} \right) + \beta_4 ROA_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

where:

$TA_{i,t}$: Represents the total of accruals defined as the difference between earnings and operating cash flow.

$AT_{i,t-1}$: Total assets for firm i in year t-1.

$\Delta REV_{i,t}$: Revenues for firm i in year t with less revenues for year t-1.

$PPE_{i,t}$: Gross property plant and equipment for firm i in year t.

$ROA_{i,t-1}$: Return on assets for firm i in year t-1.

ε : Residual term which represents the discretionary accruals.

Thus, the parameters obtained for the estimation of regression (1) are used in the determination of non-discretionary accruals (NDA):

$$NDA_{i,t} = \beta_0 + \beta_1 \left(\frac{1}{AT_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t}}{AT_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{AT_{i,t-1}} \right) + \beta_4 ROA_{i,t-1} \quad (2)$$

Therefore, DA is calculated by the following equation:

$$DA_{i,t} = \frac{TA_{i,t}}{AT_{i,t-1}} - NDA_{i,t} \quad (3)$$

Consistent with Becker, Jiambalvo, and Subramanyam (1998) and Klein (2002), this study applies the absolute value of DA as a measure for the level of EM. The direction of EM is disregarded to include the combined effect of income increasing and income decreasing EM.

Measurement of independent variables.

Internal audit effectiveness (IAE). IAF effectiveness is measured by an average score of the 15 items extracted from the international standards for internal audit and used largely in empirical studies (Ziegenfuss, 2000; Arena & Azzone, 2009; Cohen & Sayag, 2010; Dellai & Omri, 2016). These items evaluate various aspects of the concept of IAF, including the quality of internal audit procedures, the function's ability to satisfy the needs of its customers, and the contribution of internal audit activities to improving organizational processes.

The participants were asked to rate the effectiveness of IA by using the Likert scale from strongly disagree (1) to strongly agree (5):

Item 1. Internal auditing (IA) is performed in accordance with the IIA Standards.

Item 2. IA develops a risk-based annual plan.

Item 3. IA communicates timely the engagement results.

Item 4. IA makes appropriate recommendations for improving the organizational processes.

Item 5. IA establishes a follow-up system to ensure that internal audit recommendations have been implemented.

Item 6. IA reviews the efficiency and effectiveness of organization's operations.

Item 7. IA reviews the reliability of organization's financial information.

Item 8. IA assesses the effectiveness of the controls for safeguarding the organization's assets.

Item 9. IA assesses compliance with policies, procedures, laws, and regulations.

Item 10. IA enhances the effectiveness of the internal control process.

Item 11. IA verifies that organizational missions are aligned with organizational objectives.

Item 12. IA ensures that risk responses are appropriate and consistent with the organization's risk appetite.

Item 13. IA evaluates how the organization manages fraud risk.

Item 14. IA enhances the effectiveness of the risk management process.

Item 15. IA enhances the effectiveness of the governance process.

The internal reliability (Cronbach's alpha = 0.862) of this measure exceeds the 0.70 threshold generally considered satisfactory in regard to scale reliability (Hair, Black, Babin, & Anderson, 2010).

Interaction between audit committee and internal audit (MEET). The interaction between the audit committee and IAF is proxied by the number of meetings between the CAE and audit committee during the year. The frequency of meetings between audit committee members and internal auditors can enhance the ability of the internal audit force (IAF) to detect frauds and earnings manipulation (Scarborough et al., 1998; Alzoubi, 2019).

Top management support (TMS). Top management support for internal audit is measured based on four items used by previous studies such as Sarens and Beelde (2006), Ahmad, Othman, Othman, and Jusoff (2009), and Cohen and Sayag (2010). The respondents were asked to indicate their agreement to the following statements on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree):

Item 1. The top management provides internal auditors the support that they expect.

Item 2. The IA department has sufficient staff to perform its responsibilities effectively.

Item 3. The IA staff has an adequate budget given the amount of auditing work planned.

Item 4. The top management provides sufficient funding for training and developing internal auditors.

The Cronbach's alpha value of top management support is considered acceptable (0.686).

Outsourcing of internal audit (OUTS). Similar to Prawitt, Sharp, and Wood (2012) and Mansor et al. (2013), this variable is proxied by a binary variable that takes a value of one if the firm outsources a part of their IAF to a third party, and 0 otherwise.

Using IAF as a management training ground (MTG). Following Messier et al. (2011), MTG is measured by dummy variable with a value of one if the firm uses the chief internal audit position as a training ground for future members of the senior management team, and 0 otherwise.

Control variables. This study includes three control variables (audit quality, firm size, and firm sector), which are frequently used to control for other relevant variables influencing EM.

Audit quality (Big 4) represents the quality of audit firms as measured by a dichotomous variable equal to one if the company is audited by one of the Big 4, 0 otherwise. This study, in line with previous researches, expected to find a negative association between EM and audit quality, implying that companies hiring Big 4 auditors reported lower levels of discretionary accruals than companies not hiring Big 4 auditors (Prawitt et al., 2009-U.S.; Al-Shetwi et al., 2011- Saudi Arabia; Alhadab & Clacher, 2018-U.K.).

Firm size (F_SIZE) refers to the natural logarithm of the total assets. Previous studies suggest that smaller firms are less monitored by the stakeholders and are, therefore more likely to manage earnings than larger firms (Xie et al., 2003-U.S.; Davidson et al., 2005-Australia; Rahman & Ali, 2006-Malaysia). Thus, a negative relationship is expected between the size of the company and EM.

Firm sector (SECT) was measured by using a dummy variable equal to one if the firm is in the private sector and 0 if the firm is in the public sector (Hope, Thomas, & Vyas, 2013-U.S.). The current study, in line with prior studies, expected that private firms are more likely to engage in earnings management activities because they are less scrutinised by the authorities than public firms.

Regression Model

To examine the relationship between internal audit characteristics and earnings management, we estimate a balanced panel data model and we use the following regression analysis:

$$EM_{it} = \alpha_0 + \alpha_1 IAE_{it} + \alpha_2 MEET_{it} + \alpha_3 TMS_{it} + \alpha_4 OUTS_{it} + \alpha_5 MTG_{it} + \alpha_6 BIG4_{it} + \alpha_7 SECT_{it} + \alpha_8 F_SIZE_{it} + \varepsilon_{it} \quad (4)$$

The definition and measurement of each variable are presented in Table 2.

Table 2

Definition and Measurement of Variables

Variables	Definition and measurement
EM	Absolute discretionary accruals for firm i in year t estimated by Kothari et al. (2005).
IAE	An average score of 15 items extracted from ISPPIA and internal auditing literature. Statements are measured by rating scale from 1: strongly disagree to 5: strongly agree.
MEET	Number of meetings held between the audit committee and CAE during the year.
TMS	An average score of 4 items. Statements are measured by a rating scale from 1: strongly disagree to 5: strongly agree.
OUTS	Dummy variable takes a value of 1 if the firm outsources any of its IAF to a third party, and 0 otherwise.
MTG	Dummy variable takes a value of 1 if the firm uses the CAE position as a training ground for future members of the senior management team, and 0 otherwise.

BIG4	Dummy variable takes a value of 1 if the firm is audited by one of the Big 4 audit firms (Deloitte Touche Tohmatsu; Ernst & Young; KPMG; PricewaterhouseCoopers), and 0 otherwise.
SECT	Dummy variable takes a value of 1 if the firm is in the private sector and 0 if the firm is in the public sector.
F_SIZE	Natural logarithm of total assets.
ε	Error term.

Empirical Results and Discussion

Descriptive Statistics

Table 3 presents the descriptive statistics of the variables used in this research. The absolute value of DA (dependent variable) has a mean of 8.12 per cent. These findings seem high as compared to studies of other emerging countries conducted by Rahman and Ali (2006) in Malaysia and Zgarni et al. (2016) in Tunisia who have published a figure of 4 per cent and 6.38 per cent respectively. The minimum value for EM was much closer to 0 (0.0003), whereas the maximum value was 9.99 per cent. This showed that on average, Tunisian listed companies manage their earnings.

Table 3 shows that the variable IAE measured on a five-point Likert scale has an average score of 3.78, a median of 3.8 and ranges between 2.73 and 4.6. This means that Tunisian companies are characterised by a satisfying level of the effectiveness of IA. The table also shows that on average, audit committees meet CAEs about 1.88 times a year, with a maximum of four meetings per year.

These results indicate that a minority of Tunisian listed companies (18%) are in accordance with the recommendations issued by the governance good practice guide which stipulates that audit committees and CAEs should be to meet at least four times annually. It appears from the table that the mean of the extent of top management support (TMS) is 2.19 on a five-point Likert scale and ranges between 0.75 and 3. This outcome might not be too surprising given that senior management in Tunisia is particularly suspicious of internal auditors.

The descriptive statistics indicate that 11 per cent of the Tunisian listed companies outsource a part of their IAF, while the majority 89 per cent employ in-house IAF. In Table 5, 69.9 per cent of the sample companies use their IAF as a MTG as opposed to only 30.1 per cent of the companies do not use this practice.

With regards to the control variables, the statistics indicate that 44.2 per cent of the sampled companies are audited by the Big 4, while the remaining 55.8 per cent are audited by non-Big 4 audit firms. The mean of firm size, measured by the natural logarithm of total assets, is 18.52 million with a minimum of 14.16 million and a maximum of 21.01 million. These descriptive results also show that 88.3 per cent of Tunisian listed companies belong to the private sector, while 11.7 per cent belong to the public sector.

Table 3

Descriptive Statistics (N = 162)

Variable	Mean	Min.	Max.	Median	SD
Panel A. Descriptive statistics for continuous variables					
EM	0.0812	0.0003	0.9994	0.0486	0.1157
IAE	3.7851	2.7333	4.6	3.8	0.4547
MEET	1.8888	0	4	2	1.3467
TMS	2.1944	0.75	3	2.25	0.6267
F_SIZE	18.5212	14.1619	21.0164	18.4534	1.2867
Panel B. Descriptive statistics for dummy variables					
Variable	Min.	Max.	Frequency		Percentage (%)
			1	0	1
					0

OUTS	0	1	18	144	11	89
MTG	0	1	113	49	69.9	30.1
BIG 4	0	1	71	91	44.2	55.8
SECT	0	1	143	19	88.3	11.7

Correlation Matrix

Table 4 provides the Pearson correlation coefficients for the variables used in this study. The correlation results show that only top management support for IAF (TMS) is significantly negatively related to EM at the 0.01 level. This indicates that the support of management is obviously crucial to constrain EM. It may even be that all the other factors derive from the support of top management, given that improving the effectiveness of IA, using IAF as a MTG, and outsourcing IA work are all results of decisions made by top management.

In terms of correlations between our independent variables, none of the variables had a correlation higher than 0.70, suggesting the absence of serious statistical problems related with multicollinearity (Kervin, 1992). Moreover, the results in Table 5 indicate that all variables had VIF values below the threshold of 10.

Table 4

Pearson Correlation Coefficient Matrix

No.	Variable	1	2	3	4	5	6	7	8	9
1	EM	1								
2	IAE	-0.119	1							
3	MEET	0.054	0.131*	1						
4	TMS	-0.210***	0.476***	-0.106	1					
5	OUTS	0.032	-0.161**	0.029	-0.204***	1				
6	MTG	-0.023	0.253***	0.127	0.137*	0.229***	1			
7	BIG 4	-0.041	0.054	0.083	-0.064	-0.316***	-0.127	1		
8	SECT	-0.045	0.283***	-0.117	0.440***	-0.625***	0.028	0.316***	1	
9	F_SIZE	-0.020	0.339***	-0.208***	0.370***	-0.439***	0.083	0.246***	0.587***	1

Notes. *, **, *** indicate statistical significance at the p-value $\leq$ 0.10, 0.05, and 0.01 levels, respectively.

Multivariate Analysis and Results Interpretation

In estimating our regression, the Hausman test is first run to choose between fixed and random effect models. This test shows a p-value above the threshold of 5% (Prob. > $\chi^2 = 0.6440$). Accordingly, the null hypothesis of consistent and efficient random effect is not rejected, and the model is to be estimated using the random effect approach. With panel data, heteroscedasticity and autocorrelation problems are suspected. Thus, we adopt the method proposed by Beck and Katz (1995) that is the method of Panel Corrected Standard Errors (PCSE).

Given the small size of the sample, this estimation method can provide unbiased coefficients by correcting problems of autocorrelation and heteroscedasticity in micro-panels (Beck & Katz, 1995). Indeed, based on estimations of Beck and Katz (1995) it shows that the PCSE provides more robust results than that produced by the method of generalized least squares (GLS) considered too confident.

Table 5 reports the results of the regression for this study sample. As indicated in this table, the model is globally significant ($p < 0.0001$), with an R^2 of 10.84 per cent. This finding is comparable with other studies (Rahman & Ali, 2006; Attia et al., 2016, Alhadab & Clacher, 2018). The low value of R^2 in this study indicates that there are other factors that may strongly explain the variation in the level of EM such as competence of IA, independence of IA, objectivity of internal auditors, audit committee independence, and audit committee with financial expertise.

As shown in Table 5, the coefficient related to IAE is negative (-0.018) as predicted and significant at 10% level ($z = -1.78$, $\text{sig} = 0.075$). This finding indicates that H1 is supported and confirms that the effectiveness of IA is associated with lower levels of EM. In fact, an effective IAF is a monitoring mechanism that may assist in mitigating the agency problem by reducing asymmetric information between shareholders and managers, as its responsibility is to assess financial information, as well as monitor the conduct of managers. Our result is consistent with the finding of Abbott et al. (2016), Alzoubi (2019), and Ismael and Kamel (2021) indicating that companies with an effective IAF tend to constrain EM and enhance financial reporting quality.

Table 5 shows that the meetings between CAE and audit committee are significantly and negatively associated with EM ($r = -0.013$, $z = -2.58$, $p < 0.05$). This result suggests that frequent meetings between the audit committee and internal auditors improve the quality of corporate governance and deter EM. In fact, the more audit committee has interactive communication with CAE, the more it will be able to oversight the financial reporting and consequently, managers are less able to manipulate discretionary accruals. Thus, H2 is supported and consistent with Xie et al. (2003) and Alzoubi's (2019) findings suggesting that a company with an effective audit committee and which has regular meetings with internal auditors is less likely to manage earnings.

The study shows that the association between TMS and EM is not significant. Thus, H3 is not supported. This implies that top management support for IAF does not reduce EM. This lack of a statistically significant relationship might possibly be explained by the prudence of senior managers with regard to internal auditors. More specifically senior management prefers do not to support the IAF in terms of budget allocations or human resources to restrict the scope of internal audit and consequently to limit the likelihood of managers' manipulations being detected and reported by the IAF.

The coefficient related to OUTS is negative (-0.037) and significant at 1% level ($z = -3.00$, $\text{sig} = 0.003$) suggesting that companies that outsource a part of their IAF are less inclined to manage accounting information. Contrary to our predictions, this finding can be explained by the fact that external service providers offer to the IAF availability of specialised knowledge which thus improves their capacity to detect fraud. Our finding is in contradiction with Coram et al. (2008), Mansor et al. (2013), and Johl et al.'s (2013) findings suggesting that outsourcing of internal audit is associated with a higher level of EM. Our fourth hypothesis is therefore rejected.

With respect to the impact of the practice of MTG on the EM, the results revealed a positive and significant association between them ($r = 0.052$, $z = 3.53$, $p < 0.01$). This shows that firms that used their IAF as a MTG are more likely to manage earnings and hide real performance relative to firms that do not use this practice. The results supported the notion that the use of IAF as a MTG deters the objectivity of internal auditors and makes them more likely to agree with senior management's preferences in order to be promoted into management positions. Hence, H5 is supported and in line with previous research findings (Messier et al., 2011; Christ et al., 2015; Eulerich et al., 2019).

With regard to the control variables, the results show that there is a significant negative relationship between the firm size (F_SIZE) and EM. This is consistent with the idea that larger firms are less capable to manage earnings because they are subject to more scrutiny by the authorities and regulators. Previous studies have generally shown that large companies have a lower level of EM (Davidson et al., 2005; Rahman & Ali, 2006; Mansor et al., 2013). Table 5 depicts that the firm sector (SECT) is significant and positively associated with EM. This result is consistent with the argument that private companies are more inclined to engage in EM.

Table 5 also reveals that the association between audit quality (Big 4) and EM is positive but insignificant. This finding is in contrast to that found by Prawitt et al. (2009) and Al-Shetwi et al. (2011) where audit quality

is negatively related to EM. Nevertheless, the result is similar to that found by Li and Lin (2005) and Antle, Gordon, Narayanamoorthy, and Zhou (2006) suggesting that companies audited by Big 4 audit firms report more discretionary accruals than companies audited by non-Big 4 audit firms in U.S and U.K., respectively. Indeed, our findings confirm that the Big 4 auditors do not reduce the extent of EM in Tunisian companies (Zehri & Shabou, 2011; Inaam, Khmoussi, & Fatma, 2012; Taktak & Mbarki, 2014).

In summary, our results reveal that consistent with expectations, IA effectiveness, meetings between CAEs and audit committee, and firm size are the main factors that help companies constrain EM. However, in contrast to our expectations, we find that the outsourcing of IAF also played a significant role in limiting EM. Moreover, the firm sector (private/public) and the use of IAF as a MTG increase earnings management. Our findings could not reveal a statistically significant association between management support for IAF, audit quality, and the level of EM.

Table 5

Regression Analyses

Variable	Predicted sign	Coefficient	SE	Z-statistic	P > z	VIF
IAE	-	-0.01807	0.01013	-1.78*	0.075	1.49
MEET	-	-0.01368	0.00530	-2.58**	0.010	1.17
TMS	-	-0.00579	0.02620	-0.22	0.825	1.62
OUTS	+	-0.03798	0.01265	-3.00***	0.003	1.93
MTG	+	0.05234	0.01481	3.53***	0.000	1.24
BIG 4	-	0.02889	0.02860	1.01	0.312	1.26
SECT	+	0.05080	0.02942	1.73*	0.084	2.41
F_SIZE	-	-0.02837	0.01066	-2.66***	0.008	1.78
Constant		0.62313	0.17157	3.63***	0.000	
N 162						
R ² 0.1084						
Wald chi ² 146.62						
Prob. > chi ² 0.000						

Notes. *, **, *** indicate statistical significance at the p-value $\leq$ 0.10, 0.05, and 0.01 levels, respectively.

Additional and Sensitivity Analysis

To test the reliability of our previous results, we conducted the following sensitivity and additional analyses. First, we replaced the measurement of EM from the DA used by Kothari et al.'s model (2005) to the DA used by Jones' (1991) model in order to examine whether our main results are sensitive to the discretionary accruals' proxy employed that. This sensitivity test shows similar findings with our main results. However, no significant association emerged between IA effectiveness and earnings management proxy, revealing that certain organizational factors related to the IAF have a more important effect on the level of EM than the effectiveness of IA works such as meetings between CAE and audit committee, outsourcing internal auditing, use of IAF as a MTG, firm sector, and firm size.

Second, to control the impact of IAF characteristics on EM, we re-estimate our model by including other control variables, such as firm age, leverage, firm performance, and size of IAF (Davidson et al., 2005; Prawitt et al., 2009; Nor, Ahmad, & Saleh, 2010). So, we have the following model:

$$EM_{it} = \alpha_0 + \alpha_1 IAE_{it} + \alpha_2 MEET_{it} + \alpha_3 TMS_{it} + \alpha_4 OUTS_{it} + \alpha_5 MTG_{it} + \alpha_6 BIG4_{it} + \alpha_7 SECT_{it} + \alpha_8 F_SIZE_{it} + \alpha_9 IA_SIZE_{it} + \alpha_{10} LEVR_{it} + \alpha_{11} F_AGE_{it} + \alpha_{12} ROA_{it} + \varepsilon_{it} \quad (5)$$

where:

EM is the absolute value of discretionary accruals assessed through the Jones' (1991) model:

$$\frac{TA_{i,t}}{AT_{i,t-1}} = \alpha_1 \left(\frac{1}{AT_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{i,t}}{AT_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{i,t}}{AT_{i,t-1}} \right) + \varepsilon_{i,t} \quad (6)$$

where:

$TA_{i,t}$: Total accruals defined as the difference between net income and operating cash flows.

$AT_{i,t-1}$: Total assets for firm i in year $t-1$.

$\Delta REV_{i,t}$: Revenues for firm i in year t with less revenues for year $t-1$.

$PPE_{i,t}$: Gross property plant and equipment for firm i in year t .

Size of IAF (IA_SIZE) is the natural logarithm of the internal auditors' number, *Leverage* ($LEVR$) is the ratio of total liabilities to total assets, *Firm age* (F_AGE), *Firm Performance* (ROA) is the return on asset and the other variables are the same as defined in the model (4).

The results reported in Table 5 are similar to findings presented in Table 6 using the alternative EM measure with the exception of IAE which is not significantly related to EM. We, therefore, conclude that our results are still robust after we control these factors.

Table 6

Additional and Sensitivity Analysis

Variable	Predicted sign	Coefficient	SE	Z-statistic	P > z	VIF
IAE	-	-0.00745	0.01114	-0.67	0.504	1.60
MEET	-	-0.01118	0.00537	-2.08**	0.037	1.72
TMS	-	-0.00337	0.02385	-0.14	0.887	1.91
OUTS	+	-0.06783	0.01994	-3.40***	0.001	2.01
MTG	+	0.06014	0.01184	5.08***	0.000	1.35
BIG 4	-	0.02474	0.02360	1.05	0.294	1.44
SECT	+	0.06519	0.02924	2.23**	0.026	2.58
F_SIZE	-	-0.03558	0.01040	-3.42***	0.001	1.97
IA_SIZE	-	0.00868	0.02326	0.37	0.709	1.30
LEVR	+	-0.00289	0.03785	-0.08	0.939	2.14
F_AGE	+	0.00005	0.00033	0.16	0.876	1.67
ROA	-	-0.25858	0.20012	-1.29	0.196	1.90
Constant		0.69911	0.16817	4.16***	0.000	
N	162					
R ²	0.1572					
Wald chi ²	1,345.54					
Prob. > chi ²	0.000					

Notes. *, **, *** indicate statistical significance at the p-value ≤ 0.10, 0.05, and 0.01 levels, respectively.

Conclusion

The objective of this study is to examine the relationship between internal auditing characteristics and EM for companies listed on the Tunisia Stock Exchange for the period from 2017 to 2022. Using the panel corrected

standard error approach, the empirical results showed that companies maintain effective internal auditing function, frequent meetings between CAEs and audit committee members, and outsource a part of their internal audit activities have less EM.

Results indicate that the use of IAF as a MTG is positively and significantly related to abnormal accruals. This finding is consistent with the notion that internal auditors employed in a MTG have an incentive to align their judgments with senior management's preferences, especially in earnings management (Christ et al., 2015; Eulerich et al., 2019). Moreover, this study finds no evidence to suggest that top management support for IAF effectively reduce EM. The results also revealed lower levels of EM when firm size is large, and higher EM when the company operates in the private sector. However, the findings do not show evidence of any significant relation between EM and audit quality.

Our results remain robust to additional sensitivity analysis, which consists of using an alternative measure of EM (dependent variable) and using regression that includes other variables to control the impact of IA characteristics on EM such as, firm age, leverage, firm performance, and size of IAF.

The findings of this current study make the following contributions. First, we extend the earnings management literature by providing the first empirical research on internal auditing characteristics in the context of an emerging country like Tunisia. Second, our results shed light on the importance of the IA effectiveness and the role of the audit committee in constraining earnings management as few studies examined the impact of IAF on EM.

There are several important implications of our study. First, academic researchers and practitioners may benefit from this study which provides evidence that IAF can produce an effective monitoring mechanism for mitigating earnings management in developing countries like Tunisia. Second, our results send an urgent message to the regulators and policy-makers of Tunisia that IAF is a crucial governance mechanism to improve the credibility of financial reporting as well as the external audit and the audit committee. So, it is necessary to establish new laws reinforcing the valuable roles played by IAF in reducing earnings management practices and encourage companies to create a productive work environment for internal auditors to fulfil efficiently their responsibilities. Third, investors might interest from how the IAF in Tunisian listed companies affects positively the financial reporting quality, which can encourage investment and restore confidence in the Tunisian capital market.

Our study is subject to two major limitations. Firstly, our sample size is relatively limited. Nevertheless, this restriction is an immediate consequence of the small size of the Tunisian stock market. In addition, we have used the modified Jones model (Kothari et al., 2005) to measure EM. Although the model is accepted in accounting research, it is characterised by many researchers as a weak model, not able to capture and to predict the full magnitude of the use of EM.

Our study has limitations due to its small sample size. Nevertheless, this restriction is an immediate consequence of the small size of the Tunisian stock market. Future studies can examine other variables of IAF characteristics influencing EM such as IAF compliance with the International Standards for the Professional Practice of Internal Auditing (ISPPA).

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