

# The role of internal audit function in strengthening corporate governance: A case on Yemeni commercial banks

Abdulrahman Mohammed Al-yazidi<sup>a\*</sup>, Md. Faruk Abdullah<sup>b</sup> Adeeb A. Alhebry<sup>c</sup>

<sup>ab</sup>*Faculty of Business and Management, Universiti Sultan Zainal Abidin, Terengganu, Malaysia*

<sup>c</sup>*King Khalid University, Abha, Kingdom of Saudi Arabia*

---

## ARTICLE INFO

### *Article history:*

Received 12 January 2022

Accepted 25 March 2022

Published 31 May 2022

### *Keywords:*

Internal Audit

Internal Audit Effectiveness

Corporate Governance

Yemen

Commercial Banks

### *DOI:*

10.24191/jeeir.v10i2.18434

---

## ABSTRACT

This study examines the relationship between internal audit function (IAF) and the effectiveness of corporate governance (CG) in Yemeni commercial banks. The data were collected by a questionnaire survey distributed to internal auditors, heads of internal audit, chairman and members of audit committees, chief executives, and financial managers of Yemeni commercial banks. After distributing the questionnaire survey to the respondents, 158 valid questionnaires were obtained for analysis. Smart PLS 3 was used to analyse the data and test the hypotheses on the relationship between the attributes of the IAF and the effectiveness of CG. The study findings show a strong association between the efficacy of CG and the IAF's objectivity, independence, professional ethics, and IAF size. The results obtained represent a valuable addition to the literature on the attributes of IAF that affect the effectiveness of CG in developing countries, such as Yemen. Finally, the paper concludes that the attributes of the IAF have a significant and influential role in enhancing the effectiveness of CG.

---

## 1. Introduction

The growth of global industries, the size of commercial projects, and the emergence of multinational corporations have made it impossible for owners and investors to manage their businesses themselves, as many investors lack the time or experience to operate the business and ensure a return on their investment, necessitating the separation of ownership and management. The investors entrust the business's management to professionals to ensure that the 'business's objectives are met efficiently and effectively. The owners and investors hire people with administrative experience to handle the business's management and daily operations. Corporate Governance (CG) ensures a balance between various actors and the implementation of tools for preserving economic wealth, whether for shareholders or other interested parties in the business's capital, particularly given that other parties are managing the companies (Tabara & Ungureanu, 2012).

---

\* Corresponding author. E-mail address: farukabdullah77@gmail.com

Despite the importance of CG, it requires the support of many accounting functions. Consequently, IAF is considered one of the essential pillars of CG (Gramling et al., 2004). Historically, internal audit has played a significant role in CG in many firms, dating back to the early 1940s (Moeller, 2004), and the nature of this role has changed through time (Lin et al., 2011). Moreover, it has gained a higher level more significance than ever before (Carcello et al., 2005). It has also enhanced CG's effectiveness (Gramling et al., 2004; Karagiorgos et al., 2010).

The presence of an effective IAF is critical to the success of any organisation because of the strong relationship between the IAF and CG (Carcello et al., 2005). Many academics have stated that the IAF is prepared to assist and succeed in CG and control processes based on the link between the IAF and CG (Kontogeorgis, 2018). Internal audit quality has a beneficial function in CG by giving reassurance that company risks are adequately handled and that internal controls for financial reporting are working successfully, as well as its role in avoiding profit manipulation and fraud (Arena & Azzone, 2009; Arum, 2015; Cohen et al., 2010; Ege, 2015; Maria, 2012; Mihret et al., 2010; Onumah et al., 2016).

For the audit function to play its critical role in improving CG, it must possess specific characteristics that boost its efficiency. Competence and professional care are the most crucial factors contributing to the IAF's effectiveness (Abdolmohammadi, 2009; Cohen & Sayag, 2010). In addition, professional ethics (D'Onza et al., 2015; IIA, 2009), independence and objectivity (Alzeban & Gwilliam, 2014; Dellai & Omri, 2016), and the size of the IAF (Alzeban & Gwilliam, 2014; Mat Zain et al., 2006; Prawitt et al., 2009).

Despite current scientific literature focusing on the importance of IAF as a CG mechanism, particularly in developed nations, little research has looked into the role of IAF in developing countries (Ahmad et al., 2009; Al-Twaijry et al., 2003; Alzeban & Gwilliam, 2014; Mihret & Yismaw, 2007; Sakour & Laila, 2015). This prompted many researchers to call for more research into the role of IAF, particularly in different international settings, such as developing countries, where more research and attention are required (Abdullah, 2014; Ahmad et al., 2009; Al-Twaijry et al., 2003; Arena & Azzone, 2007, 2009; Barac & Van Staden, 2009; Mihret & Yismaw, 2007; Sarens et al., 2012; Soh & Martinov-Bennie, 2011).

As a developing country, Yemen is an interesting case study that emphasises the importance of examining factors that influence internal auditing's effectiveness and role in strengthening CG, particularly in the banking sector. According to researchers' knowledge, this is the only study that has looked at the role of IAF quality drivers in promoting CG in the Yemeni banking sector. To this end, this study aims to shed light on variables of the quality of the IAF that enhance CG in the Yemeni banking industry. As a result, it is expected that this research will contribute to the body of knowledge on CG and the role of IAF effectiveness. Therefore, this study fills a gap in the literature by examining the connection between the determinants of the quality of IAF and the efficacy of CG, raising awareness of the IAF's status as one of the most crucial pillars of CG alongside the board of directors, the AC, and the external audit.

## **2. Literature review and hypothesis development**

### *2.1 Underpinning theory of the study*

Agency theory is one of the most prevalent theories for both IAF and CG. The connection that occurs between two parties, agents and owners, in which the first (the owners) contracts the second (the agents) to execute service on their behalf is the focus of agency theory (Jensen & Meckling, 1976; Muda & Dharsuky, 2015). The term "agency theory" is frequently used to explain the interaction between business owners and management. Owners (shareholders) delegate authority to managers (agents) to handle their affairs and make decisions on their behalf. Owners anticipate significant returns on their investment, while management expects high compensation and fulfilling their psychological demands (Muda et al., 2018). According to agency theory, this creates a conflict of interest between owners (shareholders) and agents (managers) because it is assumed that corporate managers are more interested in exploiting the company for their gain (opportunistic behaviour) than increasing returns to shareholders (Davidson et al., 2005;

Hillman et al., 2011; Lin et al., 2011). Manipulation of financial reports is one of the manipulations that managers can use to carry out their opportunistic behaviour (Ittonen et al., 2010; Xie et al., 2003).

According to CG studies, two agency issues arise from conflicts of interest between directors and shareholders. The first occurs when the board of directors is made up of persons who make decisions in the best interests of the shareholders, but management's goals are not aligned with the board and shareholders. The second agency problem occurs when the board of directors is made up of directors who are obedient to the CEO but do not share the shareholders' interests (Kachouri & Jarboui, 2017). According to agency theory, there should be an appropriate level of control to protect shareholders' interests from management's self-interest (Al-Matari, 2019). The agency processes problems mitigated by CG mechanisms, which promote information transparency, safeguard shareholder interests, and discourage opportunistic management action. The IAF is one of these mechanisms (Bushman & Smith, 2001; Shleifer & Vishny, 1997).

According to agency theory, the CG's IAF is a crucial control mechanism to alleviate conflicts of interest and information asymmetry difficulties managers and agents (Goodwin - Stewart & Kent, 2006; Sarens & Abdolmohammadi, 2011). According to agency theory, an internal audit represents the interests of shareholders and a vast range of internal audit users, including the board of directors, the AC, and management (Internal audit represents the interests of shareholders and a vast extension of internal audit users, according to agency theory (Peursem & Pumphrey, 2005).

According to proponents of the agency theory, senior management invests in the IAF to reassure the board that the internal control system and risk management process are working correctly. According to agency theory considerations, specific characteristics of internal audit employees may improve the IAF's ability to maintain and evaluate an effective internal control system (Oussii & Boulila Taktak, 2018). Therefore, internal auditors must perform their work in a professional manner, which necessitates educational and professional certificates and other expertise and competencies to contribute effectively to reducing agency problems and protecting the interests of shareholders; they must also maintain objectivity and independence while doing their work (Endaya & Hanefah, 2013). As a result, we anticipate a favourable link between the determinants of IAF quality and CG effectiveness.

## 2.2 Corporate governance

CG is defined as "A set of relationships between a company's management, its board, its shareholders and other stakeholders which provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance. It helps define the way authority and responsibility are allocated and how corporate decisions are made" (BCBS, 2015). CG is also defined as "the system by which companies are directed and controlled" (The Cadbury Report, 1992).

CG has been recognised as an essential component of market discipline since Perley's publication of "Modern Enterprise and Private Ownership" in the early 1930s, especially in light of the separation of ownership and management. The urgent need for reassurance and credibility in capital markets, as well as the activation of investments in response to the economic shocks that occurred at the turn of the third millennium, provided the impetus for reformulating governance mechanisms and rules, giving it global momentum as well as scientific and professional significance (BRC, 1999).

CG is critical to a company's success because it ensures that it can fulfil its legal requirements and fiduciary responsibilities to investors while also giving it a competitive edge over companies with less effective systems of governance (Levis, 2006). The quality of CG processes also influences the financial system's capacity to withstand risk. It is also beneficial for firms to have a robust governance framework to help resolve disagreements between shareholders, executives, and other stakeholders (Oino, 2019).

Other studies found a positive correlation between high levels of CG quality, for example (financial experience, size, independence of the Audit Committee, independence of the external auditor, the independence of the board of directors), and the quality of internal control. The study made by Johnstone et al. (2011) also stressed a good connection between the effectiveness of CG and the effectiveness of internal controls, by addressing weaknesses in internal control, as the treatment of liabilities goes hand in

hand with improvements in the Governing Council, the Senior Review and Administration Committees as essential elements of CG.

It is widely known that internal audit is an essential component of CG (Bame-Aldred et al., 2013; Burton et al., 2012). Where the internal auditor is seen as a critical member of strategic value and an integral part of CG, and the internal audit is dealt with as the function that will create assurances and provide recommendations for the completion of the implementation and follow-up of the CG framework (Abdullah, 2014). Because of this, the IAF's contribution to CG is unquestionable (Eulerich et al., 2013). Especially after the series scandals that occurred over the past few years which drew attention to the importance of good CG (Endaya & Hanefah, 2016; Khelif & Samaha, 2014; Sultana et al., 2015).

### 2.3 Independence and objectivity of IAF

Despite its functional relationship with senior management, several professional organisations and standard-setters have repeatedly emphasised the necessity of the IAF's independence and impartiality throughout the last years (Dellai & Omri, 2016). Independence is defined as “freedom from conditions and circumstances that threaten the ability of the internal audit activity or chief audit executive to carry out internal audit responsibilities in an impartial manner” objectivity is “an unbiased mental pattern that authorises internal auditors to perform internal audit tasks in such a way that they believe in the integrity and quality of their work without reproach” (Moeller, 2015). Having direct and unfettered access to top management and the board of directors is critical for ensuring the proper independence of the internal audit function. Objectivity also requires that internal auditors' judgments on audit matters not be subordinated to the opinions of others (IIA Moeller, 2015).

The IAF's ability to be objective and independent is critical to its success (Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010; D'Onza et al., 2015). The IAF's efficiency is directly proportional to its independence and objectivity (D'Onza et al., 2015; Dellai & Omri, 2016). And any position that weakens these characteristics may result in the loss of credibility and the profession of internal auditors in the eyes of stakeholders, among other consequences (Anderson, 2008). Internal auditors will be unable to offer the essential information to the board of directors and audit committee if the IAF lacks independence and objectivity, lowering the IAF's quality (Chambers & Odar, 2015; Christopher et al., 2009). Hence, it's evident that the Independence and objectivity of IAF affect the effectiveness of CG, and thus, the following hypothesis is assumed:

H1: There is a positive and significant relationship between the independence and objectivity of IAF and the effectiveness of CG.

### 2.4 Ethics of the profession of IAF

When performing their duties, internal auditors must uphold the most significant levels of honesty, integrity, and ethics (Alias et al., 2019). Internal auditors, unlike external auditors, are exposed to internal influence by management and other stakeholders, making this difficult to resist (Roussy, 2013; Suddaby et al., 2009). As a result, the question arises as to whether internal auditors are motivated by the ideals of ethics, honesty, and objectivity when carrying out the internal audit process (Alias et al., 2019; Everett, J., & Tremblay, 2014).

Objectivity, honesty, confidentiality, and competency are essential characteristics expressed in the IIA Code of Ethics. These guidelines were created to promote ethical behaviour and create an ethical culture within the internal auditing profession. The code of ethics, for example, highlights the significance of internal auditors completing their work honestly, diligently, and responsibly and not engaging in any unlawful activity or dishonourable conduct in the internal audit profession or the business. According to the document, internal auditors should also help achieve legitimate corporate goals and uphold ethical norms inside the organisation, With the obligation not to utilise information gathered during their work for personal gain at the expense of the organisation's legal and ethical goals (IIA, 2009).

Internal auditors must follow the principles of the Code of Ethics to ensure the reliability of their assessments, so providing a basis for trust in their judgement and contributes to the organisation's creating value (D'Onza et al., 2015; IIA, 2009). Furthermore, internal auditors' lack of commitment to professional ethics may lead to their acceptance of unethical activity within the firm, which limits the effectiveness of IAF (Mirshekary & Carr, 2015). Moeller (2004) also stated that adhering to the (IIA Standards), which emphasise integrity, objectivity, confidentiality, and efficiency, is an effective way to improve the overall quality of an organisation's IAF. On the other hand, a recent study by Eulerich and colleagues (2015) found that companies' overall performance is improved when internal auditors adhere to professional norms and the code of ethics. Hence, it's evident that the professional ethics of IAF affects the effectiveness of CG, and accordingly, the following hypothesis is assumed:

H2: There is a positive and significant relationship between the professional ethics of IAF and the effectiveness of CG.

## 2.5 The size of internal audit function (IAF)

IIA' guidelines emphasise the importance of providing the IAF with appropriate and required resources to accomplish its duties efficiently and effectively (Moeller, 2015). "Ensure that internal audit resources are sufficient and appropriate to carry out the audit properly is the responsibility of the chief IAF" (ISPPA, Standard 2030). "A sufficient number of internal auditors should also be employed according to the standard" (Advisory Practice, Standard 2030-1) (Moeller, 2015).

Furthermore, various prior studies have stressed the importance of IAF size in efficiency and effectiveness. There is a positive correlation between the number of resources available to the IAF and its significance, according to Alhajri (2017). Mat Zain et al. (2006) discovered, in a study they did, that there is a positive association between the appraisal of internal auditors for their contribution to auditing the financial statements and IAF size. Alzeban and Gwilliam (2014) discovered that there is a positive and statistically significant relationship between the size of an organisation's IAF and the efficacy of that function. Among the essential prerequisites for good internal audit performance, according to Bednarek (2018), is the availability of a sufficient number of qualified internal auditors. The effectiveness of IAF grows as the ratio between the number of internal auditors and the number of workers in the organisation increases, according to Arena & Azzone's (2009) research. As a result, it's clear that IAF size influences the effectiveness of CG, leading to the following hypothesis:

H3: There is a positive and significant relationship between IAF size and the effectiveness of CG.

The hypothesised relationships between internal audit function attributes and the effectiveness of CG are shown in Figure 1:

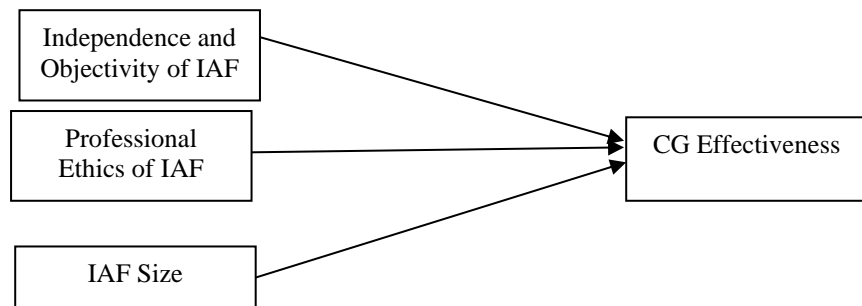


Figure 1. The relationship between IAF attributes and the effectiveness of CG

### 3. Methodology

#### 3.1 Research design

The research design refers to “the approach and procedures used to collect and analyse data linked to the research questions or hypotheses addressed” (Crotty, 2009). In most cases, quantitative and qualitative methodologies are employed in research. In this study, a quantitative method was chosen to determine the correlation between independence and objectivity of IAF, professional ethics of IAF, IAF size, and the effectiveness of CG. To achieve the study's objectives and answer its questions, the researchers chose the questionnaire form as the primary tool for collecting study data. This is because the questionnaire list is known for obtaining the highest response rate and is one of the most accessible instruments in exploratory and field research. In addition, according to Sekaran & Bougie (2016), when collecting data, the questionnaire is the most powerful and effective method as well as the fact that many similar past studies employed the questionnaire list to collect study data (e.g. Alzeban, 2015; Alzeban & Gwilliam, 2014; Madawaki & Ahmi, 2021; Oussii & Boulila Taktak, 2018; Prawitt et al., 2009; Vadasi et al., 2019). The survey took place between February and April 2021. And to measure the variables and test the study hypotheses, the researchers employed the Smart PLS-SEM 3.3.3 version.

#### 3.2 Sample

In this study, sixteen Yemeni commercial banks participated in the research, eleven of which are conventional banks and five Islamic banks. Internal audit heads and personnel, audit committee heads and members, chief executives, and financial managers in these banks are included in the study sample, as they have been in similar previous studies (Alzeban & Gwilliam, 2014; D'Onza et al., 2015; Jachi & Yona, 2019; Oussii & Boulila Taktak, 2018; Sarens et al., 2012; Vadasi et al., 2019). The researchers also chose the banking sector for various reasons, the most notable being that banks are the most regulated of all industries in Yemen, notably in internal audits and CG.

A total of 219 survey questionnaires were distributed, with 174 returned, 45 not returned, and 16 rejected as invalid for analysis. The total number of usable questionnaires was then employed 158 questionnaires. They were yielding a response rate of 72 per cent. For this investigation, 158 questionnaires were deemed adequate. Men make up the bulk of responses (135 participants) and account for 85.4 per cent of the total. Respondents between the ages of 31 and 40 make up the most significant share of respondents, accounting for 57 of the total number of respondents, or 36 per cent of the total number of respondents. The 41-50 age group comes in second, with 25.5 per cent (40 participants) of the total. On the other hand, of the 158 people who responded to the survey, the majority (57 participants) had more than 15 years of experience, while only (7) had less than one year.

#### 3.3 Measurements

The study's independent variables are represented by IAF objectivity and independence, professional ethics, and IAF size, and the dependent variable, which is defined by the effectiveness of CG. According to previous studies, ten items were selected to measure the objectivity and independence of IAF (Alzeban and Gwilliam 2014; Dellai and Omri 2016; Drogas et al. 2015; Habib and Jiang 2015). And ten elements to measure the professional ethics of IAF, extracted from (BCBS, 2012; D'Onza et al., 2015; Eulerich et al., 2015). The number of internal auditors in each bank is used to determine the size of IAF, extracted from (Alzeban & Gwilliam, 2014; Mat Zain et al., 2015). Eleven elements have also been suggested as proxies for the effectiveness of CG. These components were adapted from earlier studies (Hung & Tuan, 2019; Sarens et al., 2012; Vadasi et al., 2019). All study variables were rated on a five-point Likert scale, where 1 one strongly disagree, and 5 = strongly agree. This scale was chosen because it is seen to be the best for attaining higher mean scores, preserving the measuring method's dependability, and being the most appropriate (Dawes, 2008; Krosnick & Fabrigar, 1997).

## 4. Findings

As a means of verifying and testing the variables and hypotheses, PLS-SEM 3.3.3 was employed. We've checked the items were tested for reliability, discriminant validity, and convergent validity for each of these study variables. The path coefficients and R2 and Q2 values have also been determined. The intensity and direction of the correlations between the variables are represented by path coefficients. The degree of variance in the dependent variable caused by the independent variables is also shown by the R2 value. Q2 may also be used to assess the model's predictive potential. According to Hair Jr et al. (2016), indicators with external loadings ranging from 40–70 per cent must be deleted from the measure if deleting the indication causes the CR or average variance extracted (AVE) to climb beyond the specified threshold value. As a result, 7 items were deleted from the model, while 25 items were kept. The following sections detail the outcomes of the measurement model and the structural model analysis.

### 4.1 Measurement model

The items utilised must be precise to get reliable measurements of the latent variables. As a result, the items were tested for reliability, discriminant validity, and convergent validity. The collected findings show that all measurement models meet the basic standards. The outer loading of each construct was checked to evaluate the measurement model (Hair Jr. et al., 2014). More prominent loading factors for external loading factors indicate greater reliability. Items were kept as a general rule when they had an outer loading of more than 0.60, according to Hair Jr. et al. (2014). Seven items of the total 32 items in the current study were removed due to low outer loading for these items (less than 0.60), as seen in Table 1.

Cronbach's alpha and composite reliability are further measures of data consistency that allow for more exact estimation of data consistency. Internal consistency reliability refers to the degree that all items on a single (sub) scale measure the same variable (Sun et al., 2007). In this study, the findings show that the components have a high level of internal consistency. Chin (1998a) advised that the AVE of every latent structure be more than 0.50 in order to provide appropriate convergent validity. Table 1 shows that the AVE test scores for all variables are greater than 0.5, which means that all variables have a high level of internal consistency. Table 1 shows a summarised depiction of the measuring model.

We also looked at discriminative validity to see how closely the variable measurements are connected. Discriminant validity is used to determine the extent to which a given variable in the research framework differs from each other (Madawaki & Ahmi, 2021). Fornell and Larcker (1981) propose that the square root of AVE for a specific variable must have been more significant than the correlations between latent constructs to attain appropriate discriminant validity. It was determined that discriminant validity was present because the AVE values were more significant than the squared correlations for each set of constructs. As seen in Table 2, all AVEs were more than the specified value, which confirms the discriminant validity of the test. On the other hand, based on the findings that have been reported, it appears that the measurement model is both reliable and valid. This leads us to conclude that the existing measuring methodology used in this study is appropriate for other analyses. Figure 2 shows the measurement model assessment.

Table 1. Measurement model: Loadings, Reliability and Convergent Validity, Cronbach's Alpha, and AVE

Variables	Items	Loading	Cronbach's alpha	CR	AVE
CG Effectiveness (CGE)	CGE1	0.794	0.935	0.945	0.609
	CGE2	0.791			
	CGE3	0.768			
	CGE4	0.740			
	CGE5	0.833			
	CGE6	0.675			
	CGE7	0.817			
	CGE8	0.700			
	CGE9	0.796			
	CGE10	0.812			
	CGE11	0.844			
Independence and Objectivity of IAF (IND)	IND1	0.677	0.819	0.869	0.526
	IND2	0.677			
	IND3	0.770			
	IND6	0.770			
	IND7	0.760			
	IND9	0.690			
Professional Ethics of IAF (ETH)	ETH1	0.755	0.842	0.881	0.515
	ETH2	0.639			
	ETH3	0.706			
	ETH6	0.703			
	ETH7	0.727			
	ETH8	0.697			
	ETH9	0.786			
IAF SIZE	IAs	1	1	1	1

Notes: AVE = average variance extracted; CR = composite reliability

Table 2. Discriminant validity (Fornell-Larcker criterion)

	CGE	ETH	IND	SIZE
CGE	0.781			
ETH	0.619	0.718		
IND	0.675	0.549	0.725	
SIZE	0.232	0.108	0.128	1

Notes: CGE = corporate governance of effectiveness; SIZE = size of the internal audit function; IND = independence and objectivity of the internal audit function; ETH = professional ethics of the internal audit function. Entries shown in boldface represent the square root of AVE (measurement model).



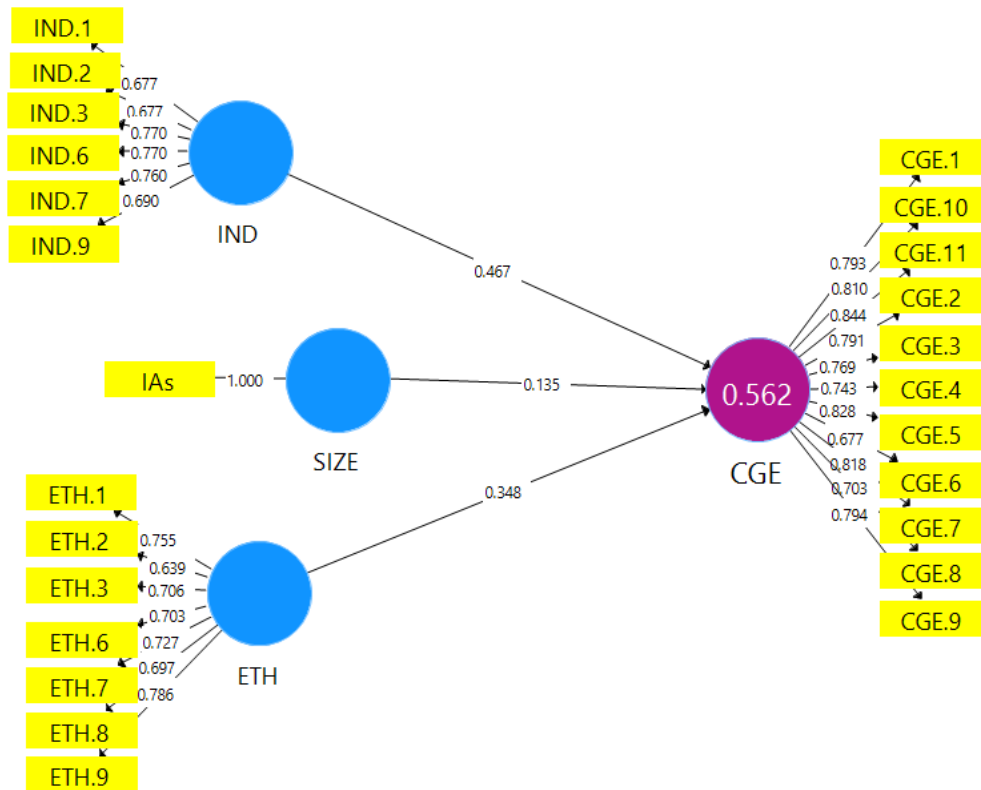


Figure 2. Measurement model assessment

#### 4.2 Structural model

The structural model employs the PLS approach to assess the link between the research variables and evaluate the study hypotheses. Where t-statistics, path coefficients, and R<sup>2</sup>, Q<sup>2</sup> values are computed. The path coefficients show the strength and direction of the associations, and the t-statistics and standard errors show the effect magnitude. R<sup>2</sup> value shows the degree of variance in the dependent variable induced by the independent variables was represented. The explanatory power of the suggested model is determined by the differences associated with the dependent variables. It is also possible to determine the model's predictive capacity using Q<sup>2</sup>, which examines whether the model can correctly forecast data that was not used to develop its parameters.

Through the results of the study, the R<sup>2</sup> values indicate that the suggested framework accounts for around 56 per cent of the variance in the effectiveness of CG. in other words, independent variables can account for roughly 56per cent of the variation in point of CG, indicating that the proposed framework has a reasonable level of explanation (Chin, 1998b). Similarly, blindfolding findings with an omission distance of 7 generated numbers of Q<sup>2</sup> that were much higher than the zero and positive values suggested by Chin (1998b). Consequently, the proposed model's explanatory power and predictive relevance are acceptable in this context. The results are shown in Table 3.

Table 3. Construct Cross validated redundancy

Variables	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
Corporate Governance Effectiveness	1,738.000	1,156.699	0.334

Regarding path structure, the study used the bootstrapping approach to test the predicted relationships empirically; the path coefficients' significance was examined using 2000 bootstrapping techniques. Table 4 shows the p-values, t-statistic and path coefficients for each connection. The table shows that the relationship between independence and objectivity of IAF and the effectiveness of CG was positive and significant (path coefficient =0.467; t=7.024; p<0.01), which means that if independence and objectivity of IAF increase, the effectiveness of CG will also increase, thus H1 is acceptable. The relationship between IAF's professional ethics and CG's effectiveness was positive and significant (Path coefficient= 0. 0.348; t=5.796; p<0.01), indicating that if the professional ethics of IAF improves, effectiveness of CG will improve. As a result, H2 gets approved. Finally, the relationship between IAF size and CG effectiveness had been positive and significant (path coefficient =0.135; t=2.481; p<0.01), showing that if the IAF were significant, the effectiveness of CG would improve. As a result, H3 gets approved. The results of the hypothesis testing are shown in Table 4.

Table 4. Path coefficient for hypotheses testing

Hypotheses	Relations	Path coefficient	Std. error	T-value	P-value	Decision
H1	IND → CGE	0.467	0.067	7.024	0.000**	Supported
H2	ETH → CGE	0.348	0.060	5.796	0.000**	Supported
H3	SIZE → CGE	0.135	0.054	2.481	0.007**	Supported

Note: Significant level \*\*p < 0.05

## 5. Discussion of the results

### 5.1 Theoretical contribution

In this study, it is being investigated whether IAF attributes help to improve CG in Yemeni commercial banks. The independence and objectivity of IAF, the ethics of the profession of IAF, and IAF size were all assessed as IAF attributes in this study.

According to the findings, the first characteristic has a positive and considerable impact on the effectiveness of CG due to IAF's independence and objectivity. These findings support the prior study by Fadzil et al. (2005), which discovered a positive and substantial link between the internal auditor's objectivity and the efficacy of the internal control system. The study findings are also in line with the conclusions of the Hazami-Ammar study (2019), which highlighted the significance of independence and objectivity of IAF, which is favourably connected with the choice to launch a self-investigation on fraud and violations. Furthermore, D'Onza et al. (2015) found in their study a solid and positive relationship between the objectivity and independence of the IAF and the ability of the IAF to add value.

Furthermore, other studies found that the IAF's neutrality and independence are critical to the CG process because it increases internal auditors' ability to report difficulties to the AC (Scarbrough et al., 1998) and help the CG perform its duties more efficiently (Chambers & Odar, 2015). However, the findings of this study contradict those of Oussii & Boulila Taktak (2018), who found that the number of significant internal control defects revealed by the IAF is not significantly connected to the IAF's independence.

Regarding the second characteristic, the ethics of the profession of IAF, the study's findings reveal a positive and significant link between the professional ethics of IAF and the effectiveness of CG. This outcome is consistent with past research findings. According to Eulerich et al. (2015), internal auditors' compliance with professional standards and the code of ethics improves CG's overall effectiveness and efficiency. According to D'Onza et al. (2015), there is a positive relationship between the IAF's ability to

offer value and auditors' adherence to the IIA code of ethics. Furthermore, a recent study discovered that IAF ethics are positively connected with transparency and accountability, hence improving CG (Jachi & Yona, 2019). To be ethically compliant, according to the Basel committee on banking supervision (BCBS, 2012), internal auditors must keep secret all information they obtain while doing their job and not use it for personal benefit or harm. Internal auditors, especially the Chief Internal Auditor, must avoid conflicts of interest to improve CG performance.

About the third characteristic, which is the IAF size, AF size has a substantial impact on CG effectiveness, according to the study results. These findings are comparable to those of Martino et al. (2021), who found that IAF size is related to the level of IAF engagement in CG. In addition, Alzeban & Gwilliam (2014) found a positive and substantial association between the magnitude of IAF and its effectiveness. This conclusion is also in line with the Institute of Internal Auditors' proposal, which emphasises the need to hire the correct number of internal auditors and provide the IAF with the tools it needs to do its job efficiently and effectively (Moeller, 2015).

However, the findings of this study contrast those of another recent study, Oussii & Boulila Taktak (2018), which found no link or correlation between the size of the IAF and the significant internal control flaws uncovered by the organisation's IAF.

## 5.2 Managerial contributions

To the best of the researcher's knowledge, this is the first study to look into the factors of IAF quality and its role in fostering CG in Yemen's economic sectors, particularly the banking industry. It is also one of the few studies examining IAF in the Middle East. Because IAF research is scarce in Middle Eastern nations (Al-Twaijry et al., 2003; Alzeban & Gwilliam, 2014; Mihret et al., 2010; Mihret & Yismaw, 2007; Oussii & Boulila Taktak, 2018), this study seeks to fill the gap by offering insights into internal audits in Yemen, whether the IAF is seen to be effective, and how the quality of the IAF effects the promotion of CG. Doing so allows practitioners better to grasp the benefits of IAF's quality in Yemen.

Furthermore, the outcomes of this study have ramifications for CAEs, internal auditors, and boards of directors who want to improve the efficiency of their organisations' business operations. For example, the knowledge of the parts of the IAF that impact the quality of the IAF can assist CAEs and internal auditors in identifying areas for development that will help them achieve their objectives. Commercial bank boards of directors and ACs also use these findings to aid them in carrying out their obligations, such as selecting CAEs, employing internal audit professionals, and reviewing the IAF to ensure that it is effective.

## 6. Conclusion

The fundamental purpose of this study is to look at the link between IAF attributes and the effectiveness of CG in emerging countries. The findings of this study contribute to the corpus of earlier research on the relevance of the characteristics of IAF in enhancing CG, which has been undertaken previously. Research hypotheses are generated to determine whether the bank's IAF attributes influence CG's effectiveness. The empirical findings provide evidence that the characteristics of IAF are positively and significantly related to the efficacy of CG in a company. In particular, the results indicate that the relationship between independence and objectivity of IAF, professional ethics of IAF, IAF size and effectiveness of CG were positive and significant. We feel that our joint findings have shown the importance of the IAF's independence and objectivity and the professional ethics of IAF and scale in creating trust in strengthening internal control and the financial reporting process.

The current study's findings provide several significant contributions. This study bolsters research on the association between IAF quality and CG effectiveness. It demonstrates the value of IAF traits and their capacity to improve CG. Specifically, our findings show that improving the independence and objectivity of IAF, as well as enhancing the professional ethics of IAF and IAF size, will result in more robust internal controls, which will assist managers in improving the quality of financial reporting by their companies, and will assist audit committees in overseeing the activities of IAF and evaluating the performance of internal

auditors. Specifically, concerning regulatory bodies, our findings indicate that reexamining how to improve the independence and objectivity of IAF and the professional ethics of IAF to improve internal control quality and thereby produce higher-quality financial reporting outcomes may be beneficial. This, in turn, leads to a more muscular CG system.

There are various limitations to our study that should be taken into account when analysing the findings. First and foremost, our study has a small sample size. On the other hand, the Yemeni market is known for its modest sample sizes. Second, this study concentrated on the banking sector, neglecting to consider the other of Yemen's economic sectors, which motivates the remaining researchers to include all of Yemen's economic sectors in their future research. Third, IAF may have additional characteristics that were not included in our model, which can help organisations enhance their efficiency and effectiveness in CG by improving internal control and raising the quality of financial reporting, among other things. Hence, future studies may look at additional IAF characteristics such as risk consulting of IAF, top management support for IAF, and the CAE leadership style on CG effectiveness.

### Acknowledgements

The authors would like to thank the anonymous reviewers for their constructive comments in developing the manuscript. Moreover, the authors would like to express their deepest gratitude to the Faculty of Business and Management, Universiti Sultan Zainal Abidin (Gong Badak Campus), for providing the platform to conduct this research.

### Conflict of interest statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with any funders or authoritative body.

### References

- Abdolmohammadi, M. J. (2009). Factors associated with the use of and compliance with the IIA standards: A study of Anglo-culture CAEs. *International Journal of Auditing*, 13(1), 27–42. <https://doi.org/10.1111/j.1099-1123.2008.00393.x>
- Abdullah, R. (2014). *Redefining internal audit performance: Impact on corporate governance* [Doctorate thesis, Edith Cowan University]. ECU Research Online Institutional Repository. <https://ro.ecu.edu.au/theses/1567/>
- Ahmad, N., Othman, R., Othman, R., & Jusoff, K. (2009). The effectiveness of internal audit in the Malaysian public sector. *Journal of Modern Accounting and Auditing*, 5(9), 53–62.
- Alhajri, M. O. (2017). Factors associated with the size of internal audit functions: Evidence from Kuwait. *Managerial Auditing Journal*, 32(1), 75–89.
- Alias, N. F., Nawawi, A., Saiful, A., & Puteh, A. (2019). Internal auditor's compliance to code of ethics: Empirical findings from Malaysian government-linked companies. *Journal of Financial Crime*, 26(1), 179–194. <https://doi.org/10.1108/JFC-07-2017-0066>
- Al-Matari, E. M. (2019). Do characteristics of the board of directors and top executives affect corporate performance in the financial sector? Evidence using stock. *Corporate Governance: The International Journal of Business in Society*, 20(1), 28.
- Al-Twajjry, A. A. M., Brierley, J. A., & Gwilliam, D. R. (2003). The development of internal audit in Saudi Arabia: an institutional theory perspective. *Critical Perspectives on Accounting*, 14(5), 507–531.

- Alzeban, A. (2015). Influence of audit committees on internal audit conformance with internal audit standards. *Managerial Auditing Journal*, 30(6–7), 539–559. <https://doi.org/10.1108/MAJ-12-2014-1132>
- Alzeban, A., & Gwilliam, D. (2014). Factors affecting the internal audit effectiveness: A survey of the Saudi public sector. *Journal of International Accounting, Auditing and Taxation*, 23(2), 74–86. <https://doi.org/https://doi.org/10.1016/j.intaccaudtax.2014.06.001>
- Anderson, R. (2008). *Risk management & corporate governance*. OECD. <https://www.oecd.org/corporate/ca/corporategovernanceprinciples/42670210.pdf>
- Arena, M., & Azzone, G. (2007). Internal audit departments: Adoption and characteristics in Italian companies. *International Journal of Auditing*, 11(2), 91–114.
- Arena, M., & Azzone, G. (2009). Identifying organizational drivers of internal audit effectiveness. *International Journal of Auditing*, 13(1), 43–60.
- Arum, E. D. P. (2015). Determinants of internal audit function effectiveness and its implication on financial reporting quality. *International Journal of Economic Research*, 12(5), 1989–2000.
- Bame-Aldred, C. W., Brandon, D. M., Messier, W. F., Rittenberg, L. E., & Stefaniak, C. M. (2013). A summary of research on external auditor reliance on the internal audit function. *Auditing: A Journal of Practice & Theory*, 32(Supplement 1), 251–286.
- Barac, K., & Van Staden, M. (2009). The correlation between perceived internal audit quality and defined corporate governance soundness. *African Journal of Business Management*, 3(13), 946–958.
- BCBS. (2012). *The internal audit function in banks*. <https://www.bis.org/publ/bcbs223.htm>
- BCBS. (2015). *Corporate governance principles for banks*. <https://www.bis.org/bcbs/publ/d328.htm>
- Bednarek, P. (2018). Factors affecting the internal audit effectiveness: a survey of the polish private and public sectors. In Dudycz, T., Osbert-Pociecha, G., Brycz, B. (Eds.), *Efficiency in Business and Economics, Springer Proceedings in Business and Economics* (pp. 1–16). Springer. [https://doi.org/10.1007/978-3-319-68285-3\\_1](https://doi.org/10.1007/978-3-319-68285-3_1)
- BRC. (1999). The report and recommendations of the Blue Ribbon Committee (BRC) on improving the effectiveness of corporate audit committees. *The Business Lawyer*, 54(3), 1057–1066.
- Burton, F. G., Emett, S. A., Simon, C. A., & Wood, D. A. (2012). Corporate managers' reliance on internal auditor recommendations. *Auditing: A Journal of Practice & Theory*, 31(2), 151–166.
- Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, 32(1–3), 237–333.
- Carcello, J. V, Hermanson, D. R., & Raghunandan, K. (2005). Changes in Internal Auditing During the Time of the Major US Accounting Scandals. *International Journal of Auditing*, 9(2), 117–127. <https://doi.org/10.1111/j.1099-1123.2005.00273.x>
- Chambers, A. D., & Odar, M. (2015). A new vision for internal audit. *Managerial Auditing Journal*, 30(1), 34–55. <https://doi.org/10.1108/MAJ-08-2014-1073>
- Chin, W. W. (1998a). Issues and opinion on structural equation modelling. *MIS Quarterly: Management Information Systems*, 22(1), 7–16.

- Chin, W. W. (1998b). The partial least squares approach to structural equation modelling. *Modern Methods for Business Research*, 295(2), 295–336.
- Christopher, J., Sarens, G., & Leung, P. (2009). A critical analysis of the independence of the internal audit function: Evidence from Australia. *Accounting, Auditing and Accountability Journal*, 22(2), 200–220. <https://doi.org/10.1108/09513570910933942>
- Cohen, A., & Sayag, G. (2010). The effectiveness of internal auditing: an empirical examination of its determinants in Israeli organisations. *Australian Accounting Review*, 20(3), 296–307. <https://doi.org/10.1111/j.1835-2561.2010.00092.x>
- Cohen, J., Krishnamoorthy, G., & Wright, A. (2010). Corporate governance in the post-Sarbanes-Oxley era: Auditors' experiences. *Contemporary Accounting Research*, 27(3), 751–786. <https://doi.org/10.1111/j.1911-3846.2010.01026.x>
- Crotty, M. J. (2009). *The foundation of social research: Meaning and perspective in the research process*. SAGE Publications.
- D'Onza, G., Selim, G. M., Melville, R., & Allegrini, M. (2015). A study on internal auditor perceptions of the function's ability to add value. *International Journal of Auditing*, 19(3), 182–194. <https://doi.org/10.1111/ijau.12048>
- Davidson, R., Goodwin-Stewart, J., & Kent, P. (2005). Internal governance structures and earnings management. *Accounting and Finance*, 45(2), 241–267. <https://doi.org/10.1111/j.1467-629x.2004.00132.x>
- Dawes, J. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. *International Journal of Market Research*, 50(1), 61–104. <https://doi.org/10.1177%2F147078530805000106>
- Dellai, H., & Omri, M. A. B. (2016). Factors affecting the internal audit effectiveness in Tunisian organisations. *Research Journal of Finance and Accounting*, 7(16), 208–221.
- Drogalas, G., Karagiorgos T. & Arampatzis K. (2015). Factors associated with internal audit effectiveness: Evidence from Greece. *Journal of Accounting and Taxation*, 7(7), 113–122.
- Ege, M. S. (2015). Does internal audit function quality deter management misconduct? *The Accounting Review*, 90(2), 495–527. <https://doi.org/10.2308/accr-50871>
- Endaya, K. A., & Hanefah, M. M. (2013). Internal audit effectiveness: An approach proposition to develop the theoretical framework. *Research Journal of Finance and Accounting*, 4(10), 92–102.
- Endaya, K. A., & Hanefah, M. M. (2016). Internal auditor characteristics, internal audit effectiveness, and the moderating effect of senior management. *Journal of Economic and Administrative Sciences*, 32(2), 160–176. <https://doi.org/10.1108/jeas-07-2015-0023>
- Eulerich, M., Theis, J., Velte, P., & Stiglbauer. (2013). Self-perception of the internal audit function within the corporate governance system: Empirical evidence for the European Union. *Problems and Perspectives in Management*, 11(2), 57–72.
- Eulerich, M., Velte, P., & Theis, J. (2015). Internal auditor's contribution to good corporate governance an empirical analysis for the one-tier governance system with a focus on the relationship between internal audit function and audit committee. *Corporate Ownership and Control*, 13(1), 141–151. <https://doi.org/10.22495/cocv13i1c1p1>

- Everett, J., & Tremblay, M. S. (2014). Ethics and internal audit: Moral will and moral skill in a heteronomous field. *Critical Perspectives on Accounting*, 25(3), 181–196. <https://www.sciencedirect.com/science/article/pii/S1045235413001044>
- Fadzil, F. H., Haron, H., & Jantan, M. (2005). Internal auditing practices and internal control system. *Managerial Auditing Journal*, 20(8), 844–866. <https://doi.org/10.1108/02686900510619683>
- Fornell, C., & Larcker, D. F. (1981). *Structural equation models with unobservable variables and measurement error: Algebra and statistics*. SAGE Publications.
- Goodwin - Stewart, J., & Kent, P. (2006). Relation between external audit fees, audit committee characteristics and internal audit. *Accounting & Finance*, 46(3), 387 – 404. <https://doi.org/10.1111/j.1467-629X.2006.00174.x>
- Gramling, A. A., Maletta, M. J., Schneider, A., & Church, B. K. (2004). The role of the internal audit function in corporate governance: A synthesis of the extant internal auditing literature and directions for future research. *Journal of Accounting Literature*, 23, 194–244.
- Habib, A., & Jiang, H. (2015). Corporate governance and financial reporting quality in China: A survey of recent evidence. *Journal of International Accounting, Auditing and Taxation*, 24(1), 29–45.
- Hair Jr., J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modelling (PLS-SEM)*. SAGE publications.
- Hair Jr., J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on partial least squares structural equation modelling (PLS-SEM) (2<sup>nd</sup> ed.)*. SAGE Publications.
- Hazami-Ammar, S. (2019). Internal auditors' perceptions of the function's ability to investigate fraud. *Journal of Applied Accounting Research*, 20(2), 134–153. <https://doi.org/10.1108/JAAR-09-2017-0098>
- Hillman, A. J., Shropshire, C., Certo, S. T., Dalton, D. R., & Dalton, C. M. (2011). What I like about you: A multilevel study of shareholder discontent with director monitoring. *Organization Science*, 22(3), 675–687.
- Hung, D., & Tuan, T. (2019). Factors affecting the effectiveness of internal control in joint stock commercial banks in Vietnam. *Management Science Letters*, 9(11), 1799–1812. <http://dx.doi.org/10.5267/j.msl.2019.6.011>
- IIA. (2009). *Code of ethics*. The Institute of Internal Auditors. [https://doi.org/https://na.theiia.org/standards-guidance/Public%20Documents/IPPF\\_Code\\_of\\_Ethics\\_01-09.pdf](https://doi.org/https://na.theiia.org/standards-guidance/Public%20Documents/IPPF_Code_of_Ethics_01-09.pdf)
- Ittonen, K., Miettinen, J., & Vähämaa, S. (2010). Does female representation on audit committees affect audit fees?. *Quarterly Journal of Finance and Accounting*, 49(3/4), 113–139.
- Jachi, M., & Yona, L. (2019). The impact of ethics and objectivity of internal audit personnel on transparency and accountability. Case of Zimbabwe local authorities. *European Journal of Business and Management*, 11(7), 108–124. <https://doi.org/10.7176/ejbm%2F11-7-09>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

- Johnstone, K., Li, C., & Rupley, H. (2011). Changes in corporate governance are associated with the revelation of internal control material weaknesses and their subsequent remediation. *Contemporary Accounting Research*, 28(1), 331–383. <https://doi.org/10.1111/j.1911-3846.2010.01037.x>
- Kachouri, M., & Jarboui, A. (2017). Exploring the relation between corporate reporting and corporate governance effectiveness. *Journal of Financial Reporting and Accounting*, 15(3), 347–366. <https://doi.org/10.1108/jfra-06-2016-0053>
- Karagiorgos, T., Drogalas, G., Gotzamanis, E., & Tampakoudis, I. (2010). Internal auditing is an effective tool for corporate governance. *Journal of Business Management*, 2(1), 15–23.
- Khlif, H., & Samaha, K. (2014). Internal control quality, Egyptian standards on auditing and external audit delays: Evidence from the Egyptian stock exchange. *International Journal of Auditing*, 18(2), 139–154.
- Kontogeorgis, G. (2018). The role of internal audit function on corporate governance and management. *International Journal of Accounting and Financial Reporting*, 8(4), 100–114. <https://doi.org/10.5296/ijaf.v8i4.13626>
- Krosnick, J. A., & Fabrigar, L. R. (1997). Designing rating scales for effective measurement in surveys. In L. Lyberg, P. Biemer, M. Collins, E. De Leeuw, C. Dippo, N. Schwarz, D. Trewin (Eds.), *Survey measurement and process quality* (pp. 141–164). WILEY. <https://doi.org/10.1002/9781118490013.ch6>
- Levis, J. (2006). Adoption of corporate social responsibility codes by multinational companies. *Journal of Asian Economics*, 17(1), 50–55. <https://doi.org/10.1016/j.asieco.2006.01.007>
- Lin, S., Pizzini, M., Vargus, M., & Bardhan, I. R. (2011). The role of the internal audit function in the disclosure of material weaknesses. *The Accounting Review*, 86(1), 287–323. <https://doi.org/10.2308/accr.00000016>
- Madawaki, A., & Ahmi, A. (2021). Internal audit functions, financial reporting quality and the moderating effect of senior management support. *Meditari Accountancy Research*, 34(4), 458–481. <https://doi.org/10.1108/MAJ-06-2018-1910>
- Maria, R. (2012). Corporate governance, internal audit and environmental audit - The performance tools in Romanian companies. *Accounting and Management Information Systems*, 11(1), 112–130.
- Martino, P., D'Onza, G., & Melville, R. (2021). The relationship between CAE leadership and the IAF's involvement in corporate governance. *Journal of Accounting, Auditing & Finance*, 36(2), 430–448. <https://doi.org/10.1177/0148558X19867539>
- Mat Zain, M., Subramaniam, N., & Stewart, J. (2006). Internal auditors' assessment of their contribution to financial statement audits and the relation with audit committee and internal audit function characteristics. *International Journal of Auditing*, 10(1), 1–18. <http://doi.org/10.1111/j.1099-1123.2006.00306.x>
- Mat Zain, M., Zaman, M., & Mohamed, Z. (2015). The effect of internal audit function quality and internal audit contribution to external audit on audit fees. *International Journal of Auditing*, 19(3), 134–147. <https://doi.org/10.1111/ijau.12043>
- Mihret, D. G., & Yismaw, A. W. (2007). Internal audit effectiveness: An Ethiopian public sector case study. *Managerial Auditing Journal*, 22(5), 470–484. <https://doi.org/10.1108/02686900710750757>



- Mihret, D. G., James, K., & Mula, J. M. (2010). Antecedents and organisational performance implications of internal audit effectiveness: some propositions and research agenda. *Pacific Accounting Review*, 22(3), 224–252. <https://doi.org/10.1108/01140581011091684>
- Mirshekary, S., & Carr, R. (2015). Effects of exposure to unethical practices on the personal attitudes of accountants in small accounting firms. *Journal of Management & Organization*, 21(1), 98–106. <https://doi.org/10.1017/jmo.2014.62>
- Moeller, R. R. (2004). *Sarbanes-Oxley and the new internal auditing rules*. WILEY.
- Moeller, R. R. (2015). Standards for the professional practice of internal auditing. In R. R. Moeller (Ed.), *Brink's modern internal auditing: A common body of knowledge (8<sup>th</sup> ed.)* (pp. 215-234). WILEY. <https://doi.org/10.1002/9781119180012.ch9>
- Muda, I., & Dharsuky, A. (2015). Impact of region financial information system (SIKD) quality, role ambiguity and training on precision of financial statement of local government presentation in North Sumatra. *International Journal of Applied Business and Economic Research*, 13(6), 4283–4304.
- Muda, I., Maulana, W., Sakti Siregar, H., & Indra, N. (2018). The analysis of effects of good corporate governance on earnings management in Indonesia with panel data approach. *Iranian Economic Review*, 22(2), 599–625.
- Oino, I. (2019). Do disclosure and transparency affect bank's financial performance? *Corporate Governance*, 19(6), 1344-1361. <https://doi.org/10.1108/CG-12-2018-0378>
- Onumah, J. M., Amidu, M., & Donkor, A. (2016). *The effect of internal audit quality on earnings management of listed firms in Ghana*. Coursehero, 1–28. <https://www.coursehero.com/file/85143401/the-effect-of-internal-audit-quality-on-earnings-management-ofpdf/>
- Oussii, A. A., & Boulila Taktak, N. (2018). The impact of internal audit function characteristics on internal control quality. *Managerial Auditing Journal*, 33(5), 450–469. <https://doi.org/10.1108/MAJ-06-2017-1579>
- Peursem, K. V., & Pumphrey, L. D. (2005). Internal auditors and independence: An agency lens on corporate practice. *Financial Reporting, Regulation and Governance*, 4(2), 1–33.
- Prawitt, D. F., Smith, J. L., & Wood, D. A. (2009). Internal audit quality and earnings management. *Accounting Review*, 84(4), 1255–1280. <https://doi.org/10.2308/accr.2009.84.4.1255>
- Roussy, M. (2013). Internal auditors' roles: From watchdogs to helpers and protectors of the top manager. *Critical Perspectives on Accounting*, 24(7–8), 550–571.
- Sakour, A. S., & Laila, N. H. B. (2015). Internal audit effectiveness in Libyan public enterprises: An approach to the development of a theoretical framework. *Global Business & Management Research: An International Journal*, 7(2), 12-18
- Sarens, G., & Abdolmohammadi, M. J. (2011). Factors associated with convergence of internal auditing practices: Emerging vs developed countries. *Journal of Accounting in Emerging Economies*, 1(2), 104–122.
- Sarens, G., Abdolmohammadi, M. J., & Lenz, R. (2012). Factors associated with the internal audit function's role in corporate governance. *Journal of Applied Accounting Research*, 13(2), 191–204. <https://doi.org/10.1108/09675421211254876>

- Scarborough, D. P., Rama, D. V., & Raghunandan, K. (1998). Audit committee composition and interaction with internal auditing: Canadian Evidence. *Accounting Horizons*, 12(1), 51–62.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. WILEY.
- Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737–783. <https://doi.org/10.1111/j.1540-6261.1997.tb04820.x>
- Soh, D. S. B., & Martinov-Bennie, N. (2011). The internal audit function: Perceptions of internal audit roles, effectiveness and evaluation. *Managerial Auditing Journal*, 26(7), 605–622. <https://doi.org/10.1108/02686901111151332>
- Suddaby, R., Gendron, Y., & Lam, H. (2009). The organizational context of professionalism in accounting. *Accounting, Organizations and Society*, 34(3–4), 409–427.
- Sultana, N., Singh, H., & Van der Zahn, J. L. W. M. (2015). Audit committee characteristics and audit report lag. *International Journal of Auditing*, 19(2), 72–87. <https://doi.org/10.1111/ijau.12033>
- Sun, W., Chou, C.-P., Stacy, A. W., Ma, H., Unger, J., & Gallaher, P. (2007). SAS and SPSS macros to calculate standardized Cronbach's alpha using the upper bound of the chi coefficient for dichotomous items. *Behavior Research Methods*, 39(1), 71–81.
- Tabara, N., & Ungureanu, M. (2012). Internal Audit and Its Role in Improving Corporate Governance Systems. *Annales Universitatis Apulensis Series Oeconomica*, 1(14), 139–145. <https://doi.org/10.29302/oeconomica.2012.14.1.12>
- The Cadbury Report (1992). *The financial aspects of corporate governance*. ICAEW. <https://www.icaew.com/technical/corporate-governance/codes-and-reports/cadbury-report>
- Vadasi, C., Bekiaris, M., & Andrikopoulos, A. (2019). Corporate governance and internal audit: an institutional theory perspective. *Corporate Governance*, 20(1), 175–190. <https://doi.org/10.1108/cg-07-2019-0215>
- Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance*, 9(3), 295–316. [https://doi.org/10.1016/S0929-1199\(02\)00006-8](https://doi.org/10.1016/S0929-1199(02)00006-8)

#### Appendix A: Questions for Each of the Items

	<b>Independence and Objectivity of the Internal Audit Function</b>
1	The internal audits staff have free to report
2	The internal audit staff rotates periodically rotate within the internal audit function
3	the internal audit staff remuneration is not linked to the financial performance of the banks business
4	Internal audit reports are submitted to the audit committee or the board of directors
5	Internal audit staff are not requested to perform non-audit function
6	The internal audit committee is responsible for appointing, monitoring, and identify the internal auditor's fees
7	Internal audit staff have free access to all the informations, departments and employees in the bank

8	Internal audit staff are sufficiently independent to perform their professional obligations and duties
9	The audit committee participates in evaluating the internal audit function
10	The lines of authority, validity and responsibility of the bank create adequate protection for the internal auditors from administrative bullying
<b>Profession ethics of the Internal Audit Function</b>	
1	The internal auditors are straightforward, honest, truthful, and objective
2	Internal auditors respect the confidentiality of information acquired and they didn't use that information for personal gain
3	The internal auditors avoid potential conflicts of interest among stakeholders within the bank
4	Internal auditors do not engage in auditing activities for which they have had previous responsibility before a sufficiently long
5	Internal auditors do not receive financial rewards inconsistent with the characteristics and objectives of the internal audit function
6	The Code of Ethics for Internal Auditing is implemented in all audits by internal auditors
7	The Bank's defined code of ethics is enforced by the internal auditors
8	Internal auditors adopt ethical values and principles to the sections being audited within the bank
9	Internal auditors able to identify the risks of unethical behaviour occurring within the bank
10	Internal auditors discuss with the Chief Audit Executive when there is an ethical conflict which arises during an audit engagement
<b>Corporate governance effectiveness</b>	
1	Effectiveness and efficiency of activities and operations within the bank
2	Financial and operating reports are true and reliable and do not contain hidden or modified data
3	All laws and regulations are compliance with within the bank
4	The effectiveness of controls related to asset protection is evaluated
5	Comprehensive risk registers are developed and the related risks assessed on a periodic basis
6	Integrity and Ethical values are considered as High Priority Issues
7	An adequate information and communication system is provided at all levels to reinforce the relevant internal controls
8	Segregation of duties and responsibilities of Management and Employees is adequate
9	Risks are identified, analyzed and evaluated to determine appropriate actions to reduce them
10	Deficiencies in internal control are evaluated and communicated periodically to take corrective actions
11	Adequate IT controls are developed to ensure that the bank's objectives are achieved
<b>The size of Internal Audit Function</b>	
1	The size of the internal audit function is measured by the number of internal auditors in the bank

## About the Authors

*Md. Faruk Abdullah* is a senior lecturer at the Faculty of Business and Management, Universiti Sultan Zainal Abidin. He obtained his PhD in 2016 from the University of Malaya in the field of Islamic economics. He completed Chartered Islamic Finance Professional (CIFP) in 2012 from International Centre for Education in Islamic Finance (INCEIF). He is currently the associate editor of the Journal of Nusantara Studies. Besides, he has a research collaboration with Accounting Research Institute (ARI), Universiti Teknologi MARA (UiTM), where he is appointed as an associate fellow. He can be contacted at: farukabdullah77@gmail.com

*Abdulrahman Mohammed Al-yazidi* is a PhD candidate at the Faculty of Business and Management, Universiti Sultan Zainal Abidin (Kampus Gong Badak), Gong Badak, 21300 Kuala Nerus, Terengganu. Born in Yemen, Abdulrahman graduated from Sana'a University with a bachelor's degree in accounting. He also earned a master's degree in accounting from Menoufia University in Egypt. He frequently lectures online to accounting and management students at the University of Science and Technology.

*Adeeb A. Alhebry* is an assistant professor at King Khalid University, Abha, Kingdom of Saudi Arabia. Born in Yemen, Adeeb graduated from Ibb University with a bachelor's degree in accounting. He also completed his PhD and master's degree in accounting from Menoufia University in Egypt. He has had several master's and doctorate students under his supervision. He has published several research articles in the field of accounting.

## Authors' contributions

Abdulrahman Mohammed Al-yazidi wrote the initial draft of the manuscript, collected the data and made the analysis. Both Abdulrahman Mohammed Al-yazidi and Adeeb A. Alhebry conceptualized the study and developed the research framework. Both Md. Faruk Abdullah and Adeeb A. Alhebry supervised the research and validated it. Md. Faruk Abdullah edited the manuscript and reviewed it.



© 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).