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The effectiveness of internal audit functions and their impact on the performance of external and internal auditors

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Abstract

This study explores the relationship between the internal audit function's efficiency and the degree to which external auditors rely on its output. To gather data, a sample of 70 senior external auditors of publicly traded companies in the Republic of Yemen was chosen on purpose. Data was gathered via a questionnaire, and least partial structural equation modeling was utilized to evaluate it. The outcome shown that the degree to which external auditors rely on the work of the internal audit function is significantly positively impacted by the efficiency of the internal audit function. According to the audit risk model, this argues that external auditors should modify their audit efforts in reaction to the internal audit function's efficacy. The effectiveness and adoption of the internal audit function, as a result, adds a new dimension to the audit risk model. By acknowledging the impact of internal audit operations on external audits, the research has practical implications for customers and external auditors aiming to acquire a cost-effective audit of financial statements.

Keywords: Model for Audit Risk; Efficacy of the internal audit function; Reliance on external auditors; Auditing efforts by external auditors

1. Introduction

The internal audit function (IAF) now plays a more important role in corporate governance due to the growth in size and complexity of the organizations as well as the reforms implemented in the wake of accounting crises in the 2000s (Schneider, 2003; Arens et al., 2014). Today, IAFs assess and improve the governance and risk management processes in addition to carrying out their traditional job of enhancing controls (Azad, 2017). Regulators all across the world have increased the use of IAFs in the checks on financial reporting as a result. For instance, the Sarbanes-Oxley Act, which was passed in the US in reaction to accounting scandals, has strengthened IAF's involvement in financial reporting (Desai et al., 2010; Soh & Martinov-Bennie, 2011). According to Section 404 of the Act, management must assess the layout and operation of its internal control over financial reporting, as well as report on its success and include the results in the annual reports. Additionally, it calls for external auditors (EAs) to analyze management's evaluation of internal controls and to publish a report on the subject. Similar to this, African countries' regulators, such as those in Tunisia (Oussii & Taktak, 2018) (CMSA, 2002), have forced firms to have effective IAFs in their corporate governance processes. This is in response to global trends on enhancing corporate governance. As a result, it has been determined that the IAFs' capabilities have improved.

The link between IAFs and EAs, specifically how dependent EAs are on IAFs, has received more attention as a result of the increased capabilities of IAFs (Munro & Stewart, 2011). Internal auditors and external auditors are subject to similar auditing standards, according to the literature (Fowzia, 2010). Internal auditors are more knowledgeable with the business's operations, hazards, and internal controls, which is significant (Schneider, 2009; Mihret & Admassu, 2011).

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Thus, in line with the audit risk model viewpoint, there is potential for EAs to rely on IAFs and lessen the need for repetitive work (Azad, 2017). According to Hayes et al. (2005), the justification for EAs relying on the client's efficient controls is to increase external audit efficiency because EAs are likely to carry out less rigorous tests to gather enough audit evidence. Additionally, EAs' dependence on IAFs enhances value by lowering audit fees (Azad, 2017) and can hasten the creation of audit reports (Pizzini et al., 2015; Oussii & Taktak, 2018). Global audit standard-setters have maintained that EAs can rely on IAFs to achieve audit efficiency and gather important information that is likely to have an impact on the EAs' work, in line with empirical evidence (IAASB, 2014a,b; AICPA, 2014; PCAOB, 2016). IAFs must be functional for EAs to rely on them (Mihret & Admassu, 2011; Alsukker, 2014). If IAFs are successful in completing their primary tasks, this qualifies them as effective (Pickett, 2011). Dellai and Omri (2016) assert that IAFs are successful if they can enhance procedures related to internal control, risk management, and corporate governance. The IAFs are created by management, however they have a wide range of characteristics that depend on the requirements of the company (Azad, 2017). This implies that the IAFs' efficacy can fluctuate. Tanzania's Capital Market and Security Authority (CMSA) mandates the existence of functioning IAFs for all listed firms (CMSA, 2002). However, despite this requirement, it is still unknown whether the IAFs in these businesses accomplish their goals and are efficient to ensure .Studies claim that after the accounting crises of the 2000s, EAs grew more risk-averse (Hogan & Wilkins, 2008; Pizzini et al., 2015). Therefore, obtaining adequate and relevant audit evidence is essential for the proper opinion on the fairness and veracity of financial reporting. According to Altintas (2010), EAs use the audit risk model to gauge the volume of evidence. The detection risk, which also affects how much effort EAs must put into their work, dictates how much audit evidence is required. Additionally, Arens et al. (2014) point out that EAs use IAF while employing the audit risk model to assess the effectiveness of the client's controls. When the IAF is working effectively, they lower the level of control risk and lessen the need for substantial tests. On the other hand, it is anticipated that EAs will intensify substantive testing and regulate risk levels in the event of a weak IAF. There is conflicting data regarding whether EAs react in accordance with the audit risk model, according to earlier studies that looked at the relationship between audit risk indicators and EAs' audit efforts. These studies have made the assumption that other variables, such as audit fee, days, hours, etc., can indicate how dependent EAs are on IAF work. For instance, Pizzini et al. (2015) discover a negative relationship between the control risk—measured by the IAF quality, similar to the audit risk model—and the audit effort of EAs. Hogan and Wilkins (2008) corroborate the audit risk model in a similar manner, but instead proxying audit efforts with audit fees. Other research, using audit fees and labor hours, respectively, as those by Felix et al. (2001) and Hackenbrack and Knechel (1997), failed to construct the audit risk model. The impact that internal controls have on the work (or effort) of EAs as well as the impact that IAFs have on improving internal controls have long been acknowledged in theoretical literature (e.g. Hayes et al., 2005; Arens et al., 2014). Furthermore, investigations, like those by Dellai and Omri (2016), have shown that efficient IAFs can guarantee the controls are working properly. Deductively, this implies that there is a correlation between the effectiveness of IAFs and the degree of EA reliance on IAF activities. However, there is scant evidence showing a relationship between the reliance of EA audit efforts and IAF performance. Therefore, the goal of this study is to examine the connection between IAF efficiency and the degree of EAs' reliance on IAF work. The study investigates whether EAs adjust their reliance on IAF in response to IAF effectiveness, to put it another way. The remainder of this essay is laid out as follows. The literature supporting this study's theoretical arguments and the empirical research pertaining to its variables are then offered. The technique is then covered in section 3, and the findings and conclusions are discussed in section 4. The report concludes with a conclusion, the study's contribution, and its implications.

2. Literature

2.1. Theoretical Literature

Studies (Hogan & Wilkins, 2008; Pizzini et al., 2015) have used the audit risk model to describe the effort that the EAs put out in response to internal control effectiveness assessment. According to the model, audit risk is equal to inherent risk, control risk, and detection risk. Both inherent risk and control risk combine to create the clients' hazards in this approach. EAs merely document them based on the client's evaluation because omissions are already included in the financial statements, therefore they cannot control them for the ongoing audit. Detection risk gauges the work (or dependence) of EAs. EAs must lower the detection risk in order to maintain a manageable audit risk in the face of high client risk. Increasing the number of substantive testing samples lowers the risk of detection. As a result, more work must be put into making sure there are no omissions in the financial statements (Hayes et al., 2005). Arens et al. (2014) point out that EAs rely on IAF when utilizing the audit risk model to assess the efficacy of the client's controls. When the IAF is successful, EAs lower the level of control risk and hence fewer substantive tests are required. Additionally, when the IAF is poor, EAs raise substantive testing and the Control Risk level. As a result, the model describes how IAF efficacy affects how much IAF work is relied upon by EAs.

2.2. Empirical Literature and Hypotheses Development

The degree to which EAs depend on IAF work Reliance, according to Alsukker (2014), is a state of being dependent on someone or something. Therefore, relying on or using the work of internal auditors is what is meant when EAs use IAF (IAASB, 2014a). In two different ways, IAFs can affect the EAs' work. First, IAF is a component of internal controls; it has an impact on the efficacy of the controls, and consequently, the control risk and the job of the EAs. Second, EAs can use internal auditors as assistants or rely on the work that IAFs have already completed by reading the report (Schneider, 2009; Pizzini et al., 2015). For example, IAFs may have already assessed the controls' design (Azad, 2017), tested the controls (Schneider, 2009), and conducted substantive testing (Ramasawmy & Ramen, 2012), and EAs take these efforts into consideration. While some academic research indicates that EAs can rely on audit tests already carried out by the IAF, other research shows that EAs' audit methods are dangerous and the EAs cannot rely on them. Instead, EAs favor low-risk methods (Azad, 2017; Munro & Stewart, 2011), despite the fact that they don't significantly benefit the organization (Bame-Aldred et al., 2013). This implies that there may be a trade-off between AR and benefits due to the EAs' reliance on IAF labor. The audit methods needed to achieve an acceptable audit risk are determined by this assessment (AICPA, 2014). Various parameters have been used in recent research that have tried to determine if EAs actually alter audit tests in response to audit risk. Similar to this, different studies have shown different influences on the EAs' auditing efforts. Studies linking the relationship between IAF effectiveness and EAs' reliance have not yet come across this study, despite the theoretical literature implicitly hinting this association (see Hayes et al., 2005; Hall, 2011; Arens et al., 2014; Johnstone et al., 2014). Pizzini et al. (2015) investigated the relationship between the effort of the EAs as indicated by audit delays and the control risk as indicated by IAF quality. IAF quality was found to be negatively connected with audit delays after 216 companies that participated in the Institute of Internal Auditor's (IIA) Global Audit Information Network (GIN) survey were analyzed. As a result, IAF quality affects control risk, and EAs evaluated control risk to modify the audit process. In accordance with the audit risk model, Pizzini et al. came to the conclusion that EAs lower audit effort in response to control risk reduction brought on by improved IAF quality. Hogan and Wilkins (2008) questioned whether audit fees may rise as a result of internal control deficiencies in a different study. They looked into the connection between EAs' audit efforts and weaknesses in internal control using the audit risk model framework and audit fees as a proxy for EAs' audit efforts. The findings showed that when their clients lack internal controls, EAs conduct more thorough assessments. They came to the conclusion that EAs increase their audit effort to maintain an acceptable audit risk that is compatible with the audit risk model in response to rising control risk. By simulating and testing the production issues of EAs, O'Keefe et al. (1994) investigated the production of audit services. They included audit effort as one of the model's inputs and substituted labor hours for it. They believed that client features, particularly internal controls, have an impact on the number of hours the EAs work. They investigated the impact of internal controls on EAs' auditing efforts empirically and explicitly. Results indicated that the audit effort was not related to the effectiveness of internal controls, indicating that EAs may not act in accordance with the audit risk model. Hackenbrack and Knechel (1997) looked at the connection between audit engagement features and the resource allocations made by auditors. To quantify resources, they employed grade labor hours (for partners and managers) paid to tasks like planning and control evaluation. The degree of control dependency was one of the engagement traits that were also looked at. They specifically looked into the relationship between resources and reliance on internal controls. According to their findings, there was no proof of a connection between control reliance and audit effort that was brought on by the employment of internal control testing and assessment in place of substantive procedures. According to this study, EAs did not adhere to the audit risk model. Prawitt et al. (2011) examined IIA's GIN survey data to determine whether the IAF contribution affects audit fees, much like Pizzini et al. (2015) did in their study. They looked into the relationship between the amount of time internal auditors spend on financial-related tasks and the cost of external audits. They stated that if the IAF had carried out actions pertinent to the external audit, like verifying receivables, those actions could have an impact on the substantive procedures of EAs. Results, however, showed that there is no connection between IAF work and external audit fees. In general, research indicate that IAF effectiveness affects how much EAs rely on IAFs. IAF effectiveness is specifically shown to be positively (negatively) connected to internal control effectiveness (control risk) by Pizzini et al. (2015). Similar to this, Hogan and Wilkins (2008) show that increased control risk raises the audit effort by EAs. However, research (Hackenbrack & Knechel, 1997; Prawitt et al., 2011) also failed to find a connection between the efficiency of internal controls and the auditing efforts of EAs. These supporting details led to the following hypotheses in this study:

H: IAF effectiveness positively influences the extent of EAs' reliance on IAF work.

3. Method

Sample, population, and data collecting External auditors from auditing firms who were selected to audit listed companies in the Republic of Yemen made up the population of this study. However, no sum has been established. Because audit firms are constrained in what information they may disclose, the population was 70 owing to the absence

of a sampling frame. Since the researcher employed discretion to choose examples helpful for attaining the goals, purposive sample selection was appropriate (Saunders et al., 2009). Up until an adequate sample is achieved, volunteers are purposefully identified and asked to participate (Johnson and Christensen, 2014). Finding specialists who determine the audit technique was the goal because the current study's goal is to analyze factors that may affect the audit process. High-ranking external auditors were deemed appropriate, in line with Haroun et al. (2004) and Sugar (2014). Seventy participants were proposed as a sample in a preliminary poll to determine the probable number of senior external auditors who could take part in the study. Based on its capacity to gather data more quickly, the survey technique was employed to gather actual data (Singleton & Straits, 2009). Copies of the questionnaire were sent to the contact person at the audit company. High-ranking external auditors were deemed appropriate, in line with Haroun et al. (2004) and Sugar (2014). Seventy participants were proposed as a sample in a preliminary poll to determine the probable number of senior external auditors who could take part in the study. Based on its capacity to gather data more quickly, the survey technique was employed to gather actual data (Singleton & Straits, 2009). Copies of the questionnaire were sent to the contact person at the audit company. The Partner, Director, and Senior Auditor were the designated participants, and the contact person was asked to name them and deliver copies of them. Copies of the questionnaire that had been completed were sent back to the researcher via email or phone. The questionnaire was distributed in 80 copies, however only 70 of them were returned. To guarantee that participants filled out the questionnaire correctly and that there was no missing data, the completed versions were examined. 70 of the returning questionnaire copies were legitimate. According to Hair et al. (2017) and Kock & Hadaya (2018), the sample size for partial least square structural equation modeling (PLS-SEM) analysis should be more than 10 times the number of routes in the structural model. Since there was only one path in the model for this investigation (Figure 1), the sample size was adequate for analysis.

3.1. Profile of Respondents

The descriptive statistics for the respondents are shown. According to the figures, male EAs made up 68% of the study's sample, with females making up the remaining 32%. According to the findings, senior auditors made up the majority of participants (62%), followed by audit managers (33%). The remaining 5% belonged to the group of audit partners. This finding suggests that the respondents met the necessary seniority criteria and were expected to choose the auditing strategy during an engagement. The interviewees' educational backgrounds included a bachelor's, master's, and doctoral degree. Many responders had professional certifications (CPA, ACCA) in addition to their degree. According to the findings, 84% of respondents possessed both bachelor's degrees and professional credentials. Nevertheless, it was unexpected that some respondents (13%) just held a bachelor's degree without any additional professional training, despite Tanzanian legislation mandating all EAs to hold such training. Additionally, 2% of participants had both master's degrees and professional credentials, and 1% of participants had both a PhD and professional credentials.

3.2. Measurement of Variables

The study's variables were captured using a 5-point Likert scale, strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5), due to its ability to simplify the process of responding (Kothari, 2004). These variables were adapted from earlier studies. The dependent variable, the extent of external auditors' reliance on the internal audit function (REL) was measured using five audit procedures from Azad (2017). These procedures are tests of balances, tests of transactions, design of controls evaluation, tests of controls and substantive tests that involve narrow judgement. Following a debate in the literature on how to measure the internal audit function effectiveness (EFF), the independent variable was measured using three items from Dellai and Omri (2016). These items are connected to improving the governance process, risk management processes and internal control processes. Three items from Dellai and Omri (2016) were used to measure the independent variable in response to a disagreement in the literature regarding how to assess the efficacy of the internal audit function (EFF). These things have to do with enhancing the internal control processes, risk management processes, and governance processes.

3.3. Screening for Common Method Variance

The effects of widespread technique bias can be detrimental to the validity of a study. According to Podsakoff et al. (2003), statistical techniques can be used to address the issue. Common technique variance was therefore examined. It was determined whether Harman's single-factor test accounted for less than 50% of the overall variation (Podsakoff et al., 2012). The outcome showed a variance of 26%. This indicates that the study was unaffected by typical method bias.

4. Results and discussion

With the aid of the SmartPLS 3.0 program, a Partial Least Square-Structural Equation Modeling (PLS-SEM) was utilized to analyze the relationships between the variables. According to Nitzl et al. (2016) and Hair et al. (2017), the PLS-SEM may examine the connection of variables, including constructs and indicators, simultaneously. To make sure that all

indicators represented the intended constructs, it was also required to assess the variables' validity and reliability. By evaluating the measurement (outer) model in PLS-SEM, the investigation can ascertain the variables' validity and reliability (Hair et al., 2019). However, it must be determined whether the indicator variables are reflecting or formative to a construct before the evaluation (Garson, 2016). In this study, all indicators were viewed as reflective because they were thought to be caused by the constructs.

4.1. Measurement Model

Both construct validity and construct reliability were used to evaluate the measurement model. The minimal indicator loading that Hair et al. (2017) advise is 0.708. Figure 1 shows that the loading of the indicators varied from 0.792 to 0.913. These findings imply that the construct indicators were suitable for inclusion in the subsequent data analysis stage. Model for Measurement in Figure 1

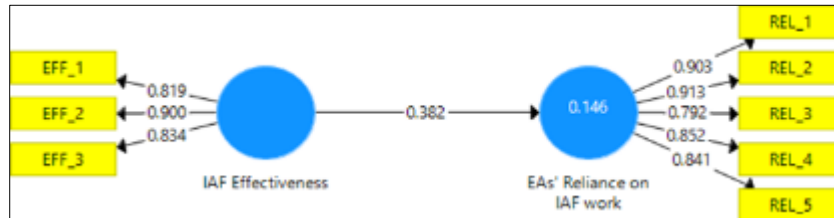


Figure 1 Smart Plus analysis model

Composite reliability (CR) is used to evaluate the dependability of variables. The findings of the CR values are shown in Table 2; the CR for the EFF was 0.888 and the CR for the REL was 0.935. These outcomes were higher than the minimum CR value of 0.700 that was advised (Hair et al., 2019). They show that the observed variables used to measure each construct had high levels of internal consistency; as a result, construct dependability was established.

Table 2 Construct Reliability and Validity

Construct	CR	AVE
EFF	0.888	0.725
REL	0.935	0.742

The construct validity is assessed using convergent and discriminant validities. The Average Variance Extracted (AVE) is used to evaluate the convergent validity. According to Table 2's findings, the constructs' AVE values fall between 0.513 and 0.649. These outcomes surpass the minimum AVE values of 0.500 that are advised (Hair et al., 2017). This shows that the observed variables accurately captured the desired construct, hence establishing the convergent validity. Furthermore, the heterotrait-monotrait (HTMT) ratio was used to evaluate the discriminant validity. Table 3's findings show that the HTMT ratio of correlations was 0.420, below the threshold of 1.00 (Hair et al., 2020). These findings show strong discriminant validity, demonstrating that the two constructs were distinct from one another.

Table 3 Discriminant Validity: Heterotrait-Monotrait Ratio

	EFF
REL	0.420

The descriptive statistics regarding the perceived effectiveness of IAF and the degree to which EAs rely on IAF activities are shown in Table 4. While the IAF efficacy was typical at 3.650, the mean value of perceived EAs' reliance on IAF work was comparatively low at 2.570. These findings demonstrate how EAs at businesses listed on the Dar es Salaam Stock Exchange perceive these constructs. On the other hand, standard deviations for the constructs were under 1.00, demonstrating agreement among the respondents.

Table 4 Descriptive Statistics

Construct	Mean	Standard deviation
EFF	3.650	0.796
REL	2.570	0.970

4.2. Structural Model

Instead of testing the goodness of fit, the structural model's ability to predict the target constructs was evaluated (Hair et al., 2017). The coefficients of determination (R²), which assess the model's accuracy in predicting the dependent variables and represent the cumulative effect of independent factors in a dependent variable, can be used to evaluate the model's capacity to predict the anticipated constructs. The Effectiveness of IAF (EFF) has an R² value of 0.146, according to Table 5 results. This indicates that IAF efficacy accounts for 14.6% of the extent of EAs' reliance on IAF work. Cohen (1988) asserts that R² above 13% can be viewed as a medium. A significant impact of an exogenous construct on an endogenous latent construct is confirmed by computing the effect size (f²) of the associations that were hypothesized. According to Hair et al. (2020), f² values of 0.02, 0.15, and 0.35 are categorized as small, medium, and big, respectively, for the approximation of the effect strength of the exogenous construct. The study's findings, shown in Table 5, showed a f² value of 0.171, indicating that EFF significantly influenced REL. In this way, it was proven that the model could predict the endogenous construct.

Table 5 Model Capability Assessment

	R Square	R Square Adj.	f square
REL	0.146	0.137	0.171

4.3. Hypotheses Test Results

One theory underpinned the study. The results for the path coefficient are shown in Figure 2 along with the corresponding p-values. The parameters, Path Coefficients (β), t-values, and p-values used to determine the significance of the hypothesis are shown in Table 6's statistical test results.

Table 6 Hypotheses Testing Results

Hypothesis	Path Coefficients β	t values (1.96)	p values (0.05)
H: EFF → REL	0.382	5.242	0.000



Figure 2 Structural Model

As indicated in Table 6, the statistical test revealed a strong positive path (EFF → REL) coefficient (β) = 0.382, t-value = 5.242 and p-value = 0.000. Consistent with the prediction, the result suggested that the IAF effectiveness had a significant positive influence on EAs' reliance on the IAF work. Putting it differently, the control risk was negatively related to the extent of EAs' reliance on the IAF work. This result means that EAs change their audit efforts, as measured by the actual reliance, in response to changes in control risk, measured by the IAF effectiveness. Putting things into context, as reported by descriptive of variables, EAs perceived an average level of IAF effectiveness in listed companies. It was, therefore, expected that EAs would assess control risk relatively high and therefore reduce reliance, which was the case. This finding is consistent with the audit risk model and provides evidence that EAs in the listed companies are

sensitive to audit failures. Previous tests of the audit risk model provide mixed evidence about the negative association between EAs' audit efforts and control risk. Studies (O'Keefe et al., 1994; Hackenbrack & Knechel, 1997), for instance, documented no relation between internal control dependence and EAs' audit effort, as measured by audit labour hours. On the contrary, studies (Hogan & Wilkins, 2008; Prawitt et al., 2011; Pizzini et al., 2015) revealed that EAs put out more effort, as measured by audit fees and audit delays, when the clients have weak internal controls. Schneider (1985)'s study also reported that reliance on IAF work declines as the strength of IAF weakened. The opposite is true, according to research (Hogan & Wilkins, 2008; Prawitt et al., 2011; Pizzini et al., 2015), as evidenced by audit fees and audit delays, EAs exert more effort when the customers have inadequate internal controls.

5. Conclusion

In listed businesses in the Republic of Yemen, this study investigates the effect of IAF efficacy on EAs' dependence on IAF work. The findings demonstrated that the efficacy of the IAF is correlated with the degree to which operating agencies rely on it. The conclusion of this study reveals that EAs change their efforts in response to the effectiveness of the IAF, consistent with the audit risk model, depending on the amount to which the IAF can be relied upon to represent the audit efforts of EAs. The following ways that this study adds to the auditing literature. First, this study adds a new dimension, namely EAs' reliance on internal audit work, as measured by audit tests, to earlier studies that mimic audit activities with elements like audit fees. Audit risk is decreased by audit tests like substantive testing and test monitoring. As a result, it lessens the work and effort required from agencies. Second, this study builds on earlier studies that looked at how the IAF affected the operation of counting agencies. Finally, it helps us understand how operational agencies respond to audit risk. The findings showed that enumeration regions are risk adverse; as a result, they raise (or decrease) their audit efforts in reaction to the IAF's effectiveness, which can be either low or high. By acknowledging the impact of IAFs on external audits, the study's findings have practical significance for clients and operational agencies seeking a cost-effective audit of financial statements. The CMSA, the DSE, and regulatory agencies must consider the ramifications of the discovery. When operational agencies and internal auditors audit financial statements for listed businesses, these authorities demand on strong internal control systems and a close working relationship between them. They can reconsider how to carefully watch how the Guidelines are being applied in order to boost the effectiveness of the global framework and ultimately boost adoption confidence. The respondents and enumeration areas for this study were chosen using the purposive sampling method. Due to the need for IAF participants, the study selected listed companies. According to whether they were partners, directors, or senior auditors who audited listed businesses, EAs were chosen. A purposefully chosen sample may restrict the generalizability of the sample to the population, claim By concentrating solely on EAs of listed firms in Tanzania, this study explored EAs' perceptions of the impact of IAF efficacy on EAs' reliance on IAFs. Future research could be done with a bigger sample of different kinds of organizations.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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