Measuring internal audit effectiveness in a specific South African public higher education institution

Mvelo Siyaya[*] Fortunate Mncwango[†]

Journal Volume & Issue:

Vol. 7, No. 1 (Special Issue, February 2026)

PP. 3-25

DOI:https://doi.org/10.46404/s51nzd03

Abstract

Investment in the internal audit function (IAF) is extensively dependent on the added value it adds to the processes of an organisation. Frequently, the value added is linked to internal audit effectiveness. Scholars argue that measuring internal audit effectiveness is a subjective topic that needs to be understood. Previous studies utilised various measurement techniques but made little effort to consider the auditee's perceptions in higher education institutions (HEIs). Therefore, this study employs the measurement of internal audit effectiveness based on the work of the IAF, as perceived by auditees in a specific South African public HEI. This practice is conducted by reviewing the influence of internal audit effectiveness on the governance, risk management and internal control processes of the chosen institution. This study was descriptive and empirical and, thus, constituted survey research. This study also employed quantitative research that forms part of the positivistic research paradigm. Through non-probability sampling methods (purposive sampling), 102 responses were received from full-time employees across multiple departments at a specific South African public HEI. The research adhered to ethical considerations and the relevant data collected were analysed through descriptive and inferential statistics. The study revealed a significant positive relationship between internal audit effectiveness, governance, risk management and internal control processes. Auditees concur that internal auditing promotes an ethical culture within the studied public HEI. Most respondents expressed positive satisfaction with the internal audit work, confirming the value addition of internal auditing to organisational processes. This study seeks to measure internal audit effectiveness within the internal processes practised by the selected departments of a public HEI from the perspective of internal audit service recipients, rather than service providers. Measuring internal audit effectiveness within the auditee's internal processes can assist decision-makers in HEIs to establish the value addition of internal auditing on organisational processes. Moreover, these results should provide feedback to the IAF of the studied institution that will help to improve its performance.

Keywords: Internal Audit, Internal Audit Effectiveness, Higher Education, Risk Management, Internal Control

[*] Cape Peninsula University of Technology, South Africa. Email: siyayam@cput.ac.za

[†] University of KwaZulu-Natal, South Africa. Email: mncwangofortunate4@gmail.com

1. Introduction

South Africa, as a developing country, is facing socio-economic issues such as unemployment, poverty, social inequalities and lack of access to public services. During the country's journey towards a better future for its citizens, the crucial role of public HEIs cannot be overlooked. The HEIs in South Africa are catalysts for socio-economic transformation (Chankseliani & McCowan, 2021). These institutions serve as engines of innovation, fostering critical thinking through the provision of quality education for all. They are the generating grounds for future leaders who will engage in socio-economic transformation initiatives towards a better life for South African citizens (Angelaki, Bersimis, Karvounidis & Douligeris, 2024; Chankseliani & McCowan, 2021). Institutions of higher education in South Africa offer opportunities to previously disadvantaged individuals to participate in the economy and actively unleash their full potential (Chankseliani & McCowan, 2021; Ngcamu & Mantzaris, 2023). Bursaries and scholarships awarded by HEIs help to unleash the potential of talented South Africans, ensuring that no appropriately qualified individuals are denied access due to financial constraints.

In the process of socio-economic transformation, a risk of fraud and corruption emerges when officials use the resources of HEIs to serve their interests at the expense of rightful owners (de Souza-Daw & Ross, 2023; Jansen, 2023). In recent years, the South African higher education sector has been associated with a series of fraud and corruption scandals, including mismanagement of funds, nepotism and bribery. The year 2022 saw the University of South Africa (UNISA), the Mangosuthu University of Technology (MUT) and the Vaal University of Technology (VUT) implicated in the mismanagement of funds (Naidu, 2023). Corruption claims have also been reported at the Universities of Fort Hare, Mpumalanga and Zululand (Naidu, 2023). Jansen (2023) reported that corruption had engulfed all 26 public HEIs in South Africa in various ways. The practice of fraud and corruption in higher education not only destroys the quality of education but also creates inequalities by diverting funds away from deserving students' right to education (de Souza-Daw & Ross, 2023; Jansen, 2023). Corruption in the higher education sector results in financial constraints that shatter the dreams of many prospective students and create infrastructure insufficiencies (de Souza-Daw & Ross, 2023; Jansen, 2023). These financial limitations also prevent or delay the construction and maintenance of lecture rooms, laboratories and other infrastructure necessary for providing students with quality education. Higher education officials' unethical use of allocated funds creates infrastructure insufficiencies that result in overcrowding and poor service delivery within HEIs (de Souza-Daw & Ross, 2023; Jansen, 2023). Frequently, too many students are gathered in a small over-heated lecture venue and, as a result, are unable to concentrate on the lesson being delivered.

There are various managerial tools suggested in the relevant extant literature to curb corruption in higher education, such as transparency, accountability and monitoring processes (dos Santos & de Oliveira Gonçalves, 2024; Ngcamu & Mantzaris, 2023). Comprehensive policies and procedures are developed in higher education to enhance transparency and accountability. The implementation of these policies and procedures need to be monitored to evaluate their effectiveness. By using their power of delegation, the councils of individual HEIs use auditing practices to evaluate the operational effectiveness of their policies. External auditing evaluates the financial statements of these institutions to determine whether these statements are free from fraud and corruption (de Souza-Daw & Ross, 2023; Pramukti, 2024). Internal auditing likewise is utilised to determine whether governance, risk management and internal control processes are adequate to minimise the risk of fraud and corruption within the organisation (dos Santos & de Oliveira Gonçalves, 2024; Siyaya, Epizitone, Jali, & Olugbara, 2021). Internal auditors review the governance structures in place, identify gaps in the risk management practices adopted and investigate whether the policies and procedures employed are adequate to minimise risk (Handoyo, 2024). The adequacy of these processes is determined by conducting risk assessments in the form of a risk control matrix. In addition, internal auditing evaluates whether the processes utilised by the HEI operate effectively to achieve its intended objectives. In instances where gaps are identified within the process, the internal auditors suggest ways to improve the process to manage risk effectively.

Notwithstanding the role of internal auditing in the higher education, the effectiveness of this process as currently practised in South African public HEIs remains in doubt. Although the effectiveness of internal auditing in other sectors of the economy is evident, few studies have attempted to unpack the efficacy of internal auditing within public HEIs (dos Santos & de Oliveira Gonçalves, 2024; Nisak & Rochayatun, 2023). Consequently, this research paper aims to explore the influence of internal auditing in higher education by measuring internal audit effectiveness in a specific South African public HEI. It is anticipated that a study of this nature will provide feedback to various stakeholders in higher education concerning the value addition of internal auditing in promoting good governance. The study considers the perspectives of internal auditing recipients to measure internal audit effectiveness. Therefore, the results of the study should also provide valuable feedback to the internal audit function of the institution studied to improve its performance.

2. Literature Review and Hypotheses Development

2.1. Internal Audit Effectiveness

The measurement of internal audit effectiveness is a subjective topic in internal auditing research. Internal audit services are considered effective when assurance and consulting services add value to organisational processes (Carrera, Trombetta & Wilford, 2023; Lenz & Hoos, 2023). The degree to which internal audit services achieve the desired outcome is known as audit effectiveness (Roussy, Barbe & Raimbault, 2020). According to the Institute of Internal Auditors (2020), the intention of internal audits is to add value to the processes of the organisation by assessing the effectiveness of risk management, internal controls and governance processes. Other researchers (Abdumannonovna, 202); Hazaea, Zhu, Khatib & Elamer, 2023) likewise claim that internal auditing assists the organisation by identifying areas of weakness within the risk management process, control environment and governance structures with an aim to suggest ways of improvement. It is claimed that effective internal audit functions prioritise the improvement of the risk management strategy, internal control environment and governance of organisational processes (Abdumannonovna, 2024).

Internal audits are expensive; thus, organisations need to make a conscious decision to invest in value-adding internal audit functions. Various standard procedures are recommended in the reviewed literature to measure internal audit effectiveness. These studies suggest that the Chief Audit Executive (CAE) needs to develop a quality assurance review programme that consists of internal and external assessments to evaluate the effectiveness of work provided by internal auditing (Institute of Internal Auditors, 2024). The execution of audit recommendations, the satisfaction of key stakeholders with the auditor's work and the quality of internal audit reports have been used to measure internal audit effectiveness in the research studies (Turetken, Jethefer & Ozkan, 2020). Some scholars considered factors such as internal audit independence and objectivity, internal auditors' competence, management support and internal audit quality as measures for measuring internal audit effectiveness (Singh, Ravindran, Ganesan, Abbasi & Haron, 2021; Ta & Doan, 2022; Turnanto, Muhammad & Hakim, 2024). These factors are discussed briefly below.

2.2. Factors of Internal Audit Effectiveness

An IAF, collectively with individual internal audit professionals housed within this function, must possess the necessary competencies to perform internal audit services (Institute of Internal Auditors, 2024). Competence involves a combination of knowledge, skills and behaviour to complete a task successfully. Internal audit professionals who hold the relevant set of knowledge, skills and behaviour mandated by the Institute of Internal Auditors (IIA) are more likely to perform their internal audits successfully (Demeke & Kaur, 2021; Joshi & Marthandan, 2023).

According to Kerfali (2023), internal auditors are expected to possess basic knowledge about internal audit procedures and behave in an ethical manner when executing their tasks. Joshi and Marthandan (2023) elaborate that internal audit professionals are not only expected to possess internal auditing skills but also soft skills, which involve personal qualities that should help them thrive in the working environment. Soft skills include but are not limited to skills in the following practices: leadership, communication, stress management, time management, problem-solving, critical thinking and teamwork (Oyewumi, Ayoib & Popoola, 2023). In addition, the changing business environment requires internal audit professionals to possess the necessary knowledge regarding the use of Computer-Assisted Audit Technology Tools (CAATs) (Ganji, Hosayni, Roozban, Mohamad Zadeh & Nami Fard Tehrani, 2023; Lutfi & Alqudah, 2023).

In addition to competence, independence and objectivity are crucial in internal auditing practices. An IAF must be correctly positioned to maintain its independence and objectivity (Turetken et al., 2020). Internal auditors must be impartial and avoid a biased mental attitude when exercising their duties. Other researchers (Coetzee & Erasmus, 2017; Karikari Appiah, Amaning, Tettevi, Frimpong Owusu & Opoku Ware, 2023) concur that an unbiased internal auditor has the potential to evaluate the operations of the auditee independently and offer valuable recommendations for enhancing the effectiveness of organisational risk management, internal controls and governance. Likewise, Shuwaili, Hesarzadeh and Bagherpour Velashani (2023) delineate that internal auditors with unbiased mental attitudes, both respect and exercise codes of good conduct as provided by the Institute of Internal Auditors, (2020) when performing their duties without being negatively influenced.

The effectiveness of internal auditing is also reliant on the support of the organisation's management (Conteh, 2021; Mehamed & Abbas, 2022). Such assistance is understood to include monetary and non-monetary support that is relevant to the functioning of the internal audit process (Conteh, 2021). An IAF executes its plan depending on the budget that is approved at the Council's level, while the Council is also expected to approve the plan and the charter for this function. Kerfali (2023) alludes that the right tone at the 'top' regarding the IAF within the organisation sets the appropriate tenor for everyone concerning this function. This type of support from management sends a message to employees apropos the position of the IAF within the organisation. Consequently, supported IAFs are in a better position to have unrestricted access to the organisation's books and processes (Conteh, 2021; Kerfali, 2023).

The quality of the work of internal auditors is also considered a good measure of internal audit effectiveness (Oyewumi et al., 2023). These researchers state that competent internal auditors are more likely to achieve the established objectives within the stipulated time, thus proving their efficiency. The use of computerised audit software in the modern business environment can greatly improve the quality of internal audit work (Ganji et al., 2023; Lutfi & Alqudah, 2023). Such programs enable internal auditors to address technology risks and controls within the process under review (Ganji et al., 2023; Lutfi & Alqudah, 2023). These tools include programs such as data analytics, spreadsheets, databases, generalised audit software and business intelligence. These IT audit tools assist internal auditors to perform a very complex audit task more manageably while significantly reducing the time required to execute that task (Lutfi & Alqudah, 2023).

Few of the aforementioned studies considered the auditee's (as the customer) satisfaction as a category for measuring internal audit effectiveness. Auditees are the recipients of internal audit services that interact directly with internal auditors on a daily basis. Therefore, they remain a crucial stakeholder in measuring internal audit effectiveness (Alzeban & Gwilliam, 2014). According to the Charted Insititute of Internal Auditors (2023), auditees' views regarding the measurement of internal audit effectiveness can provide useful insight to both management and internal auditors concerning the value that internal audit services bring to organisational processes.

2.3. Internal Auditing Influence on Organisational Processes

Internal auditing is a separate function from other functions within the organisation that performs independent assurance and consulting services that are designed to improve organisational processes (Hazaea et al., 2023; Institute of Internal Auditors, 2024). These processes include governance, risk management and internal controls. It is the responsibility of management within the organisation to ensure the establishment of effective processes (Abdumannonovna, 2024; Hazaea et al., 2023; Institute of Internal Auditors, 2020). The council, executive management and line managers are the primary owners of these processes in HEIs.

2.3.1. Governance Process

Governance is described as a system involving policies, procedures and structures that set the direction for the organisation (Irwansyah & Zega, 2023). Such a system is established by the governing body to promote a good control environment, performance, legitimacy and good behaviour within the organisation (Institute of Directors Southern African, 2016). The council is responsible for approving policies and procedures that ensure good governance within HEIs. Unlike organisational management, governance processes are primarily concerned with establishing the strategic operation of the organisation. Policies and procedures are established at the Council's level in HEIs to set the ethical culture for the achievement of objectives. Internal audit reviews are conducted at the operational level to determine the state of alignment with established objectives (Irwansyah & Zega, 2023). Internal auditing must not assume the primary responsibility of governance. The IAF is tasked with evaluating whether policies and procedures designed by executive management are sufficiently adequate and effective to achieve organisational objectives (Irwansyah & Zega, 2023; Nisak & Rochayatun, 2023).

Fonseca, Jorge and Nascimento (2020) revealed in their study that internal audits promote the principles of accountability in HEIs as perceived by the council and executive management. Internal auditing seeks to promote compliance with established policies across various functions of the institution (Fonseca et al., 2020). Hazaea et al. (2023) concur that such compliance within internal audits discourages fraud in organisational processes. These audits encourage the effective use of resources within the HEIs because employees are aware that mismanagement of assets will be reported (Nisak & Rochayatun, 2023). It is argued that internal auditing not only provides assurance of the organisation's operational processes but also reviews strategic processes for alignment with the vision and mission statement (Carrera et al., 2023). Strategies that are implemented by management are also subject to assurance to determine whether these techniques are likely to achieve organisational objectives. It is worth noting that the IAF does not provide absolute assurance that objectives will be achieved; it affords reasonable assurance that they will be realised.

Hypothesis 1 (H1): *Internal auditing effectiveness has a positive influence on the governance processes of a higher education institution*.

2.3.2. Risk Management Process

Every global organisation is exposed to risk, ranging from those relating to sustainability, reputation, financial and technology risks. Risk consists of all the events that may cause harm to the achievement of organisational objectives (Feldman, Misenar & Conrad, 2023). The council and executive management are the primary owners of risk management within HEIs. Risk management comprises the process of identifying, assessing, and responding appropriately to maintain risk within an acceptable level (Alazzabi, Mustafa & Karage, 2023; Feldman et al., 2023). Management within the HEIs is responsible for risk identification, setting risk appetite, assessing identified risks and making decisions on risk responses (Abdelaziz, 2022; Sityata, Botha & Dubihlela, 2021). The internal auditing section provides assurance by evaluating the risk management process to determine whether material risks are correctly managed (Alazzabi et al., 2023). Both Abdumannonovna (2024) and Lenz and Hoos (2023) argue that internal auditors must be able to separate between their role and that of management. The IAF should not assume primary responsibility on organisational processes. The setting of organisational objectives, risk appetite levels, compelling risk management processes and making decisions on the organisation's risk management processes are not core functions of the internal audit (Abdumannonovna, 2024).

The review of risk management by internal auditors provides assurance to the council that risks are correctly evaluated (Alazzabi et al., 2023; Weekes-Marshall, 2020). In its consulting role, an internal audit can advise on risk identification and assessment and recommend strategies for effective risk management (Institute of Internal Auditors, 2020; Lenz & Hoos, 2023; Tamimi, 2021). Risk workshops are also facilitated by internal auditors to help operational managers understand the risk strategy of the organisation (Institute of Internal Auditors, 2020; Lenz & Hoos, 2023; Tamimi, 2021). As part of combined assurance, internal auditing can become the central coordinating point of risk management between internal and external assurance providers. As the central coordinators of risk, internal auditing may be involved in the development of a risk management strategy for approval by the institution's Board of Directors (Institute of Internal Auditors, 2020).

Hypothesis 2 (H2): *Internal auditing effectiveness has a positive influence on the risk management processes of a higher education institution*.

2.3.3. Internal Control Process

The management of HEIs is accountable for the design of a successful risk management internal control system (Abdelaziz, 2022). Internal control is viewed as a system affected by the governing body, management and all employees designed to provide assurance that risk will be managed (Carrera et al., 2023). Internal controls are preventative, detective and corrective in nature. Preventative controls are designed to mitigate the occurrence of risk – unfortunately risk can be mitigated but not eliminated. Thus, explorative controls are designed by management to detect risks that bypass preventative controls. Corrective measures are undertaken to reinstate business processes, known as corrective controls. The system of internal control is crucial for the management of processes in HEIs, thus, internal auditing has a crucial role to play in this practice (Abdumannonovna, 2024; Carrera et al., 2023). As the third line of defence, internal auditing reviews the adequacy of internal controls designed by management to mitigate risk. This appraisal is conducted by internal auditors who use their professional judgment to determine whether the controls in place are capable of reducing key risks identified at an acceptable level. After identifying whether these mechanisms are adequately designed, internal auditing reviews whether these systems are operating as intended by executive management (Abdumannonovna, 2024; Institute of Internal Auditors, 2020). In instances in which internal controls are not operating effectively, internal auditors recommend possible controls that can reduce risks in the process under review (Abdumannonovna, 2024; Institute of Internal Auditors, 2020).

> Hypothesis 3 (H3): *Internal auditing effectiveness has a positive influence on the internal control processes of a higher education institution*.

2.4. Conceptual Framework

The use of agency theory is common in internal audit effectiveness research to understand internal audit value on organisational objectives. This theory assumes that the principal and the agent are working together to help organisations to realise their objectives (Mitnick, 2019). In this case, internal auditors are the agents seeking to support the principal (council) achieve the objectives of the HEI. The principal employs and supports the agents to conduct independent examinations on the success of governance, risk management and internal control processes (Agoglia, Hatfield & Lambert, 2015).

In South African public HEIs, the council (principal) delegates decision making authority to managers (agents) who are expected to serve the interests of all relevant stakeholders in this sector.

The council designs policies and procedures to guide managers in their decision-making processes. The internal auditing role is to monitor whether the designed policies and procedures are executed fairly by designated managers to serve the interests of the council and other relevant stakeholders, such as the Department of Higher Education. As the third line of defence, internal auditing must not assume the primary role of governance, risk management and internal control processes (Institute of Internal Auditors, 2020). The IIA's three lines of defence model (see Figure 1 below) illustrates that the design and implementation of organisational processes are the responsibility of management. Internal auditing conducts independent assessments to provide assurance that these processes are designed appropriately.

As a result, the conceptual framework presented in Figure 1 below is developed to explore the influence of internal auditing (agent as the third line of defence) on public higher education institutional processes (principal) thus, promoting an understanding of how internal auditing serves the interests of the council and other relevant stakeholders in this sector, such as the Department of Higher Education.

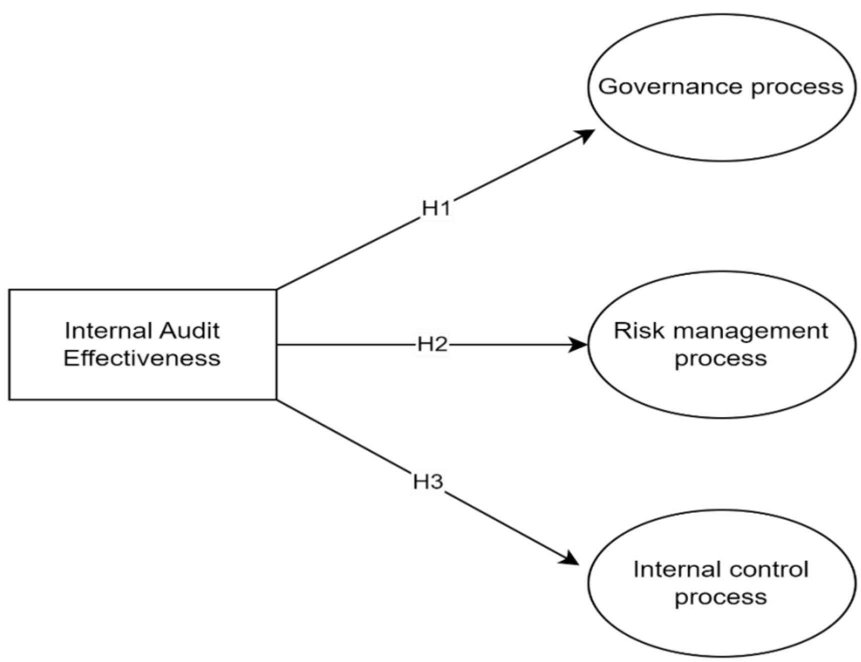


Figure 1: Conceptual framework of the study
(Source: Own Compilation)

3. Methodology

3.1. Research Design

This paper sought to examine the influence of internal auditing in higher education by measuring internal audit effectiveness in a specific South African public HEI. Prior studies revealed that internal auditing influences the governance, risk management and internal control processes within the organisation. To achieve its aim, the study is rooted in the positivistic research paradigm and quantitative research methodology. The study is quantitative hence a questionnaire with close-ended questions was used to collect quantitative data from the participants (Bloomfield & Fisher, 2019). Quantitative research design is known for providing statistical data for answering the questions of the research study (Bloomfield & Fisher, 2019). A quantitative research design was chosen to examine the influence of internal auditing on the processes of a specific public HEI. In addition, a survey strategy was employed to collect opinions and perspectives from the representatives of the targeted institution of higher education. This survey design was utilised as a cost-effective design for gathering a large amount of data, and for the generality of the findings (Bloomfield & Fisher, 2019; Sekaran & Bougie, 2016).

3.2. Population and Sampling

This paper is limited to one public HEI in South Africa. A purposive sampling technique was used for the selection of departments within this institution for data collection. The study's researchers engaged with the internal audit function of the selected institution to determine departments that could provide valuable information for the study. Based on their risk-based internal audit plan, the Finance, Risk Management and Human Capital Departments were determined as relevant for this study. Sekaran and Bougie (2016) delineate that when the sample is selected from a population with a specific purpose in mind or based on the professional judgment of the researcher, it can be regarded as non-random purposive sampling. A population of 134 employees was identified among the three departments (Finance 83, Risk Management 21 and Human Capital 30). A total of 102 responses were received from senior managers, section managers and staff members within these three departments.

3.3. Data Collection Instrument

A survey questionnaire was utilised to collect data for this study. A literature review informed the design of the questionnaire. A face-to-face survey approach was deemed useful based on Logan, Parás, Robbins and Zechmeister's (2020) assumption that respondents will provide honest and clear answers about the topic. Previous studies were consulted to determine the measurement scale of the questionnaire. This study borrowed the measurement scale by Udeh and Nwadialor (2016) to measure the influence of internal auditing on the governance, risk management and internal control processes of the selected public HEI. To avoid respondents leaning towards a neutral opinion, the Four-Likert point scale was used in this study. Respondents were requested to indicate the extent to which they agreed with statements related to internal audit effectiveness on governance, risk management and internal control processes. Upon receipt of the ethical clearance and the gatekeeper's letter, hard-copy questionnaires were printed, and the researchers visited the respondents at their working stations for data collection. All the data generated was coded on Microsoft Excel to speed up data analysis, from which data was exported to IBM SPSS 28 for a detailed analysis.

3.4. Model Specification

The researchers applied linear regression analysis in an attempt to understand the influence of internal auditing effectiveness (independent variable) on organisational processes (governance, risk management and internal control processes - dependent variable) of the selected public HEI. Three independent tests were conducted to test the hypotheses of the study, as shown below.

$$GP = \beta_0 + \beta_1 IAE + \varepsilon \qquad (1)$$

$$RMP = \beta_0 + \beta_2 IAE + \varepsilon \qquad (2)$$

$$ICP = \beta_0 + \beta_3 IAE + \varepsilon \qquad (3)$$

where:

IAE = Internal Audit Effectiveness

GP = Governance Process

RMP = Risk Management Process

ICP = Internal Control Process

ε = Error Term

Hypothesis Testing:

H_1: Governance Process $\quad H_{0:}: \beta_1 = 0 \quad vs \quad H_{1:} \beta_1 \neq 0$

H_2: Risk Management Process $\quad H_{0:}: \beta_2 = 0 \quad vs \quad H_{1:} \beta_2 \neq 0$

H_3: Internal Control Process $\quad H_{0:}: \beta_3 = 0 \quad vs \quad H_{1:} \beta_3 \neq 0$

4. Empirical Results and Discussion

4.1. Demographic Data

Table 1 below depicts the demographic factors of the study's participants. The table shows that the study participants came from the Finance, Risk Management and Human Capital Departments of the selected institution of higher education. The participants' years of experience were considered a crucial factor for this study, and hence purposive sampling was used. A total of 78 (38+17+23) out of the 102 participants possessed at least 6 years' experience of working in their current role in higher education.

Table 1: Demographic Analysis

Demographic Feature	Items	N	Valid %
Gender	Male	37	36.3
	Female	65	63.7
Qualification	Higher Certificate	6	5.9
	Diploma	22	21.6
	Bachelor	63	61.7
	Masters	7	6.9
	PhD	4	3.9
Department	Finance	56	54.9
	Risk Management	19	18.6
	Human Capital	27	26.5
Position	Admin clerk	34	33.4
	Section Manager	23	22.5
	Senior Manager	6	5.9
	Other	39	38.2
Experience	2- 5 years	24	23.5
	6-10 years	38	37.3
	11-15 years	17	16.7
	Over 15 years	23	22.5

4.2. Descriptive Statistics

The mean, standard deviation, factor loading, composite mean, composite standard deviation and Cronbach's α are presented in Table 2 below. On a scale of 1 to 4; in which 1 indicated strongly disagree, and 4 indicated strongly agree, participants were requested to indicate the extent to which they agreed with the statements that related to the governance, risk management, internal control processes and internal audit effectiveness.

Table 2: Descriptive Summary of Survey Resoponses

Study Variables and Responses	M	SD	FL	CM	CSD	Cron. α
A. Governance Process						
Internal audit promotes an ethical culture within your organisation.	3.64	.657	.708	3.32	0.822	.873
Internal audit assesses operations to conclude whether results align with established objectives.	3.23	.878	.794			
Internal audit recommendations result in a better management process.	3.38	.845	.824			
Internal audit discourages the act of fraud within your process.	3.16	.865	.767			
Internal audit provides insight allowing management to have a deeper understanding of governance processes and structures.	3.19	.864	.690			
B. Risk Management Process						
Internal audit assesses the risk management process to determine whether risks are correctly managed.	3.10	.873	.665	3.34	0.774	.873
Internal audit advises on risk identification and assessment strategies for effective risk management.	3.34	.751	.830			
Internal audit recommends strategies for effective management of risk within your process.	3.36	.728	.765			
Internal auditors facilitate risk workshops to help understand your organisation's risk strategies.	3.50	.755	.590			
Internal auditors help you implement the suggested measures for risk management.	3.42	.763	.566			
C. Internal Control Process						
Internal audit recommends possible internal controls within your process.	3.41	.788	.690	3.33	0.819	.797
Internal audit reviews the adequacy of internal controls designed within your processes.	3.23	.900	.742			
Internal audit assesses the operational effectiveness of internal controls designed within your processes.	3.31	.856	.616			
Internal auditing of the internal control system promotes the effective use of resources within your organisation.	3.52	.714	.704			
Internal audit reviews compliance with laws, policies, and procedures.	3.18	.837	.589			
D. Internal Audit Effectiveness						
Internal auditors possess sufficient experience to understand the systems of the institution.	3.25	.792	.621	3.35	0.703	.943
The number of internal audit staff and their skills match the scope of institution internal operations.	3.25	.696	.533			
The internal audit staff have the appropriate and relevant auditing qualifications and experience necessary for auditing all institutional systems.	3.34	.652	.660			
The internal audit team makes use of modern technology to perform its functions eg CAATs.	3.32	.706	.585			
Internal audit staff has free access to records within your process.	3.29	.726	.638			

The internal audit function is a separate division that is independent of your process.	3.25	.710	.709			
Internal auditors possess an impartial unbiased mental attitude when conducting their work.	3.36	.715	.727			
Internal audit staff do not perform non-audit activities.	3.22	.766	.579			
Senior management supports internal auditors to perform their duties and responsibilities.	3.38	.745	.682			
Senior management supports a risk-based internal audit plan.	3.41	.722	.781			
The internal audit function is a separate division positioned at the management level within your institution.	3.52	.671	.873			
The internal audit function is reasonably funded to successfully carry out its duties and responsibilities.	3.37	.674	.801			
Established objectives of internal audit are accomplished.	3.48	.656	.790			
Internal auditors possess adequate knowledge of key technology risks and controls within your process	3.46	.655	.873			
Internal audit findings are correctly justified.	3.40	.707	.737			
Internal audit reports are concise, accurate and easy to understand.	3.38	.661	.772			

The mean values depicted in Table 2 above ranged between 3.10 and 3.64, showing participants' agreement with the statements provided. Internal audit effectiveness indicated the top composite mean value of 3.35, with a matching composite standard deviation value of 0.703. Risk management indicated the second-top composite mean value of 3.34, with a matching standard deviation value of 0.774. Internal control indicated the third-top composite mean value of 3.33 with a matching standard deviation value of 0.819. Lastly, governance indicated the lowest composite mean value of 3.32 with a matching standard deviation value of score of 0.822. A negative relationship was noted between the composite mean and standard deviation values. The standard deviation values increase with decreasing composite mean values.

The factor loadings of the governance, risk management, internal control and internal audit effectiveness scales ranged from 0.533 to 0.873, exceeding 0.50 and were, thereby, indicative of convergent validity (Pallant, 2020). Reliability was assessed using Cronbach's α in which scores over 0.8 indicate robust reliability and reliability values over 0.7 suggest that reliability levels are acceptable (Pallant, 2020). Table 2 depicts Cron. α values ranging from 0.797 to 0.943, indicating robust reliability levels for the four variables tested. The Kolmogorov-Smirnov and Shapiro-Wilk normality tests were conducted to test the null hypothesis, and both these tests showed a P value <

0.001. When the P values of Kolmogorov-Smirnov and Shapiro-Wilk tests of normal distribution are less than 0.005, the null hypothesis can be rejected, meaning data is not normally distributed (Pallant, 2020).

4.3. Regression Analysis

This study used regression analysis to understand the relationship between internal audit effectiveness and the corresponding organisational processes (governance, risk management and internal control). The researchers used linear regression to determine the strength of the relationship between the independent variable (predictor variable) and dependent variable, also known as the outcome variable (Pallant, 2020). Tables 3, 4 and 5 below show the results of the three independent tests that were run to determine the influence of internal audit effectiveness on governance, risk management and internal control processes respectively.

Table 3: IAE Influence on Governance Processes

	Summary Statistics		F -value	24.601	
			P -value	.001	
			Adjusted R^2	.189	
			N	102	
Variables	**Unstandardised Coefficients (B)**	**SE**	**Unstandardised Coefficients (β)**	**t**	**Sig.**
IAE	.579	.117	.444	4.960	<.001
Constant	.961	.280		3.434	<.001

The results in Table 3 above depict that internal audit effectiveness positively influences governance processes of the studied public HEI ($t = 3.434$, $\beta = 0.444$, $p < 0.001$). Therefore, the null hypothesis is rejected. These results also depict that internal audit effectiveness explains 18,9% of the variation in governance processes of the studied HEI.

Table 4: IAE Influence on Risk Management Processes

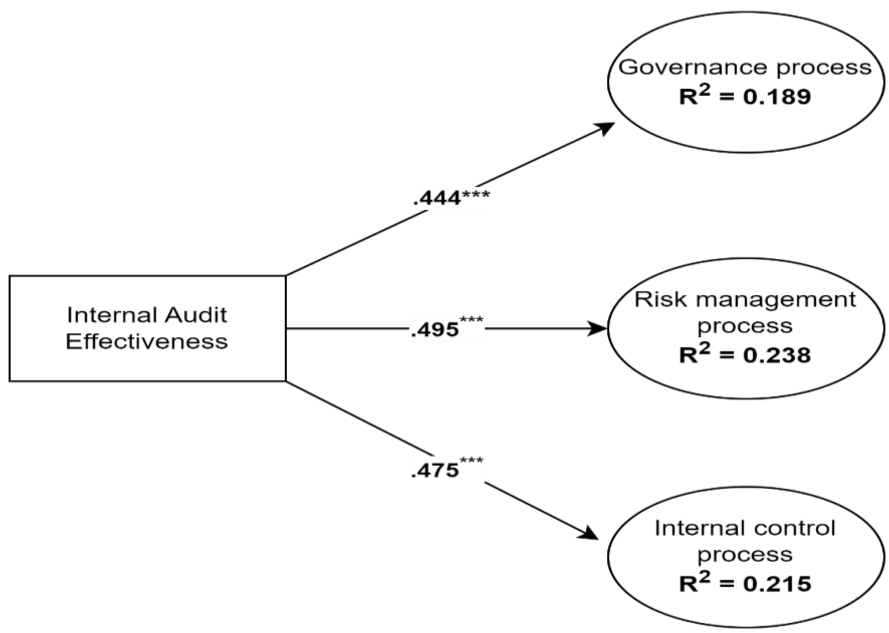
	Summary Statistics		F -value	32.506	
			P -value	.001	
			Adjusted R^2	.238	
			N	102	
Variables	**Unstandardised Coefficients (B)**	**SE**	**Unstandardised Coefficients (β)**	**T**	**Sig.**
IAE	.607	.106	.495	5.701	<.001
Constant	.924	.255		3.619	<.001

The results in Table 4 above depict that internal audit effectiveness positively influences risk management processes of the studied public HEI ($t = 3.619$, $\beta = 0.495$, $p < 0.001$). Therefore, the null hypothesis is rejected. These results also indicate that internal audit effectiveness explains 23.8% of the variation in risk management processes of the studied HEI.

Table 5: IAE Influence on Internal Control Processes

	Summary Statistics		F -value	28.594	
			P -value	.001	
			Adjusted R^2	.215	
			N	102	
Variables	**Unstandardised Coefficients (B)**	**SE**	**Unstandardised Coefficients (β)**	**T**	**Sig.**
IAE	.558	.104	.475	5.347	<.001
Constant	1.023	.250		4.092	<.001

Table 5 above depicts that internal audit effectiveness positively influences the internal control processes of the studied public HEI ($t = 4.092$, $\beta = 0.475$, $p < 0.001$). Therefore, the null hypothesis is rejected. These results also indicate that internal audit effectiveness explains 21.5% of the variation in internal control processes of the studied HEI.



**** P < 0.001, **P < 0.01, *P < 0.05*

Figure 2: Model Summary

Figure 2 above summarises the results of this study according to the model adopted. The perception of internal auditing in the reviewed literature as the mechanism for improve organisational processes makes it important to understand how this process contributes to the public higher education sector. Figure 2 above reveals that internal audit effectiveness positively influences the governance process ($t = 3.434$, $\beta = 0.444$, $p < 0.001$); risk management process ($t = 3.619$, $\beta = 0.495$, $p < 0.001$), and internal control process ($t = 4.092$, $\beta = 0.475$, $p < 0.001$) of the studied public HEI. In addition, the results depicted that internal audit effectiveness explained (R^2) 18.9%, 23.8%, and 21.5% of governance, risk management and internal control processes respectively.

The study results indicate a significant positive relationship between internal audit effectiveness, governance, risk management and internal control processes with a *p*-value < 0.001. These results confirm the claim that internal auditing plays a crucial role in evaluating the control environment of the organisation to promote good governance and effective risk management (Abdumannonovna, 2024; dos Santos & de Oliveira Gonçalves, 2024; Nisak & Rochayatun, 2023). The study's results show that an estimated change in good governance, risk management and internal control processes is 0.444, 0.495, and 0.475, respectively, for every change in internal audit effectiveness. Rakipi and D'Onza (2023) outlined in their study that effective internal audit practices promote good governance, which results to effective risk management and internal control processes. The study's results also confirm that internal auditing not only reviews the financial information of the organisation but can go beyond by reviewing non-financial information that subsequently assists in achieving objectives. Handoyo (2024) stipulates that the internal audit ambit has evolved and expanded from reviewing financial information to reviewing non-financial processes that promote good governance, effective risk management and the internal control environment of the organisation. The results of the study support the view shared in the study conducted by Fonseca et al. (2020) that public HEIs should use internal auditing to promote both an ethical culture and the management system of their processes.

The results of this study also depict that 18.9%, 23.8% and 21.5% of the variation in governance, risk management and internal control processes respectively within the selected university is explained by internal audit effectiveness. Although the adjusted R^2 can be deemed low, these results confirm the three lines of defence model issued by the IIA in 2020. This model explains that the internal audit must not assume the primary responsibility of organisational processes of the organisation (Institute of Internal Auditors, 2020). The council and executive management in HEIs are tasked to design and implement internal processes to achieve the objectives of their institution (Abdelaziz, 2022). As the third line of defence, the internal audit's role is to review the effectiveness of organisational processes as developed and implemented by the management and its employees within the organisation (Abdumannonovna, 2024; Institute of Internal Auditors, 2020). Results of this nature in the selected institution of higher education indicate that its IAF plays a role in providing reasonable assurance of the effectiveness of institutional processes. The studied institution's IAF is understood as not having the primary responsibility for the institution's processes as viewed by their finance, risk management and human capital departments. Such results conform with the revised standards for the professional practice of internal auditing, suggesting that internal auditing provides an independent assessment of the effectiveness of organisational processes (Institute of Internal Auditors, 2024).

In addition, the results of the study can also be related to the agency theory assumption. This theory assumes that the principal and the agent are working together to maximise the value of the organisation (Mitnick, 2019). The current study's results assume that the council and executive management in the studied public HEI employ internal auditing services to support good governance, effective risk management and internal control processes. These results are supported by the findings of Moodley (2019) which indicated that internal auditing is one of the mechanisms to enable good governance in the South African public sector. Likewise, internal auditing encourages accountability in higher education to promote good governance, for the protection of stakeholder value (Fonseca et al., 2020). For the IAF to effectively serve the council and executive management, this function should be supported by management and correctly positioned within the organisational structure.

5. Conclusion

This paper examined the influence of internal auditing on organisational processes by measuring internal audit effectiveness on governance, risk management and internal control processes of a selected HEI. Quantitative data was collected from the 102 participants employed within the Finance, Risk Management and Human Capital Departments of the selected South African public HEI. The study results revealed that internal audit effectiveness contributes significantly to the internal processes of the studied institution. 18%, 23%, and 21% of the variation in governance, risk management and internal control processes respectively, were influenced by internal auditing effectiveness at the p-value $<.001$.

This study, therefore, contributes to the scientific body of knowledge by measuring internal audit effectiveness from the perspective of auditees in public higher education. Auditees are the recipients of internal audit services that interact directly with internal auditors daily, thus, their consideration to determine internal audit effectiveness is crucial. The consideration of the views of auditees for measuring internal audit effectiveness can provide insight to both management and internal auditors regarding the value that internal audit services bring to organisational processes. Unbiased feedback can be obtained through this process and areas for improvement are identified. Furthermore, understanding the value addition of internal auditing on the processes of the public HEI can provide confidence to various societal stakeholders (such as communities, government, students and employees) that their interests are protected. Internal audits seek to enforce accountability in HEIs with the aim of promoting good governance and minimising risks that may negatively impact the achievement of objectives such as fraud and corruption.

The sample size of this study was limited to participants from the Finance, Risk Management and Human Capital Departments of the selected public HEI. Consequently, the study's results are not a representation of all the departments of the studied institution, nor that of other institutions. Therefore, further studies should consider the use of a larger sample size when measuring the influence of internal audit effectiveness on organisational processes.

References

Abdelaziz, S. (2022). The relation between good governance and improving performance in the higher education-HE-Institutions. *Business and Management Studies, 8*(2), 24.

Abdumannonovna, T. D. (2024). Importance and role of internal audit in enterprises *Journal of Education, Ethics and Value 3*(1), 6-9.

Agoglia, C. P., Hatfield, R. C., & Lambert, T. A. (2015). Audit team time reporting: An agency theory perspective. *Accounting, Organizations and Society, 44*, 1-14.

Alazzabi, W. Y. E., Mustafa, H., & Karage, A. I. (2023). Risk management, top management support, internal audit activities and fraud mitigation. *Journal of Financial Crime, 30*(2), 569-582.

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.

Angelaki, M. E., Bersimis, F., Karvounidis, T., & Douligeris, C. (2024). Towards more sustainable higher education institutions: Implementing the sustainable development goals and embedding sustainability into the information and computer technology curricula. *Education and Information Technologies, 29*(4), 5079-5113.

Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association, 22*(2), 27-30.

Carrera, N., Trombetta, M., & Wilford, A. (2023). Mechanisms of accountability and governance: audit, assurance, and internal control. In *Handbook of Accounting, Accountability and Governance* (pp. 144-167): Edward Elgar Publishing, United Kingdom.

Chankseliani, M., & McCowan, T. (2021). Higher education and the sustainable development goals. *Higher Education, 81*(1), 1-8.

Charted Insititute of Internal Auditors. (2023). Internal audit performance measurement. Retrieved from https://www.iia.org.uk

Coetzee, P., & Erasmus, L. J. (2017). What drives and measures public sector internal audit effectiveness? Dependent and independent variables. *International Journal of Auditing, 21*(3), 237-248.

Conteh, S. (2021). Empirical review on factors that determine an internal audit effectiveness. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 4*(3), 5019-5033.

de Souza-Daw, T., & Ross, R. (2023). Fraud in higher education: a system for detection and prevention. *Journal of Engineering, Design and Technology, 21*(3), 637-654.

Demeke, T., & Kaur, J. (2021). Determinants of Internal Audit Effectiveness: Evidence from Ethiopia. *African Journal of Business and Economic Research, 16*(2), 51.

dos Santos, J. S., & de Oliveira Gonçalves, A. (2024). Contributions of internal control to public governance: a study of the perception of internal auditors of federal educational institutions. *Revista Ambiente Contabil -Universidade Federal do Rio Grande do Norte-ISSN 2176-9036, 16*(2).

Feldman, J., Misenar, S., & Conrad, E. (2023). *CISSP® Study Guide*: Syngress.

Fonseca, A. d. R., Jorge, S., & Nascimento, C. (2020). The role of internal auditing in promoting accountability in Higher Education Institutions. *Revista de Administração Pública, 54*(2), 243-265.

Ganji, H., Hosayni, S. R., Roozban, M., Mohamad Zadeh, S., & Nami Fard Tehrani, N. (2023). Antecedents and Consequences of Internal Audit Effectiveness and Internal Audit Quality. *Judgment and Decision Making in Accounting and Auditing, 2*(5), 107-138.

Handoyo, S. (2024). Mapping the landscape of internal auditing effectiveness study: A bibliometric approach. *Cogent Business & Management, 11*(1), 2289200.

Hazaea, S. A., Zhu, J., Khatib, S. F., & Elamer, A. A. (2023). Mapping the literature of internal auditing in Europe: a systematic review and agenda for future research. *Meditari accountancy research, 31*(6), 1675-1706.

Institute of Directors Southern African. (2016). KING IV: Report on corporate governance for South Africa. In (pp. 1-128).

Institute of Internal Auditors. (2020). The IIA's three lines model: An update of the three lines of defense. Retrieved from https://www.theiia.org/en/content/position-papers/2020/the-iias-three-lines-model-an-update-of-the-three-lines-of-defense/

Institute of Internal Auditors. (2024). Global internal audit standards. Retrieved from https://www.theiia.org/globalassets/site/standards/globalinternalauditstandards_2024january9.pdf

Irwansyah, I., & Zega, W. (2023). The Influence of good corporate governance, the role of internal audit, the effectiveness of internal controls and the appropriate of compensation on fraud trends. *International Business and Accounting Research Journal, 7*(1), 37-51.

Jansen, J. D. (2023). *Corrupted: A study of chronic dysfunction in South African universities*: Wits University Press, Johannesburg.

Joshi, P. L., & Marthandan, G. (2023). Influencing factors for internal audit effectiveness in the Indian context. *Afro-Asian Journal of Finance and Accounting, 13*(2), 253-276.

Karikari Appiah, M., Amaning, N., Tettevi, P. K., Frimpong Owusu, D., & Opoku Ware, E. (2023). Internal audit effectiveness as a boon to public procurement performance: a multi mediation model. *Cogent Economics & Finance, 11*(1), 2164968.

Kerfali, S. (2023). Factors impacting the effectiveness of internal audit functions in public organizations: a quantitative study. *Alternatives Managériales Economiques, 5*(2), 64-81.

Lenz, R., & Hoos, F. (2023). The future role of the internal audit function: Assure. Build. Consult. *EDPACS, 67*(3), 39-52.

Logan, C., Parás, P., Robbins, M., & Zechmeister, E. J. (2020). Improving data quality in face-to-face survey research. *PS: Political Science & Politics, 53*(1), 46-50.

Lutfi, A., & Alqudah, H. (2023). The Influence of Technological Factors on the Computer-Assisted Audit Tools and Techniques Usage during COVID-19. *Sustainability, 15*(9), 7704.

Mehamed, S. A., & Abbas, Z. K. (2022). Impact of internal audit effectiveness in improving the company's performance. *World Bulletin of Management and Law, 17*, 167-174.

Mitnick, B. M. (2019). Origin of the theory of agency: an account by one of the theory's originators. *Available at SSRN 1020378*.

Moodley, A. (2019). *Organisational performance management as a mechanism to improve service delivery in the South African public sector: the contribution of internal auditing as an enabler.*

Naidu, E. (2023). South African universities have been 'engulfed by corruption'. *University World News Africa Edition*. Retrieved from https://www.universityworldnews.com/post.php?story=20230111201906527

Ngcamu, B. S., & Mantzaris, E. (2023). Policy enforcement, corruption and stakeholder interference in South African universities. *Journal of Transport and Supply Chain Management, 17*, 814.

Nisak, I. A., & Rochayatun, S. (2023). The role of internal audit, fraud detection, and prevention in universities: a literature review. *Dialektika: Jurnal Ekonomi dan Ilmu Sosial, 8*(1), 63-71.

Oyewumi, H. K., Ayoib, C.-A. B., & Popoola, O. M. J. (2023). Internal auditors without proficiency: a giraffe without a neck. *International Journal of Accounting, Auditing and Performance Evaluation, 19*(1), 1-21.

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*: Routledge, UK.

Pramukti, A. (2024). Internal Audit versus External Audit: A Qualitative Perspective. *Golden Ratio of Auditing Research, 4*(2), 78-88.

Rakipi, R., & D'Onza, G. (2023). The involvement of internal audit in environmental, social, and governance practices and risks: Stakeholders' salience and insights from audit committees and chief executive officers. *International Journal of Auditing*.

Roussy, M., Barbe, O., & Raimbault, S. (2020). Internal audit: from effectiveness to organizational significance. *Managerial Auditing Journal, 35*(2), 322-342.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*: John Wiley & Sons, New Jersey, USA.

Shuwaili, A. M. J., Hesarzadeh, R., & Bagherpour Velashani, M. A. (2023). Designing an internal audit effectiveness model for public sector: qualitative and quantitative evidence from a developing country. *Journal of Facilities Management*.

Singh, K. S. D., Ravindran, S., Ganesan, Y., Abbasi, G. A., & Haron, H. (2021). Antecedents and internal audit quality implications of internal audit effectiveness. *International Journal of Business Science & Applied Management (IJBSAM), 16*(2), 1-21.

Sityata, I., Botha, L., & Dubihlela, J. (2021). Risk management practices by South African Universities: An annual report disclosure analysis. *Journal of Risk and Financial Management, 14*(5), 195.

Siyaya, M. C., Epizitone, A., Jali, L. F., & Olugbara, O. O. (2021). Determinants of Internal Auditing Effectiveness in a Public Higher Education Institution. *Academy of Accounting and Financial Studies Journal, 25*(2), 1-18.

Ta, T. T., & Doan, T. N. (2022). Factors affecting internal audit effectiveness: empirical evidence from Vietnam. *International Journal of Financial Studies, 10*(2), 37.

Tamimi, O. (2021). The role of internal audit in risk management from the perspective of risk managers in the banking sector. *Australasian Accounting, Business and Finance Journal, 15*(2), 114-129.

Turetken, O., Jethefer, S., & Ozkan, B. (2020). Internal audit effectiveness: operationalization and influencing factors. *Managerial Auditing Journal, 35*(2), 238-271.

Turnanto, A., Muhammad, E., & Hakim, T. I. R. (2024). Internal Audit Effectiveness Antecedents In Higher Education: Do Competency and Time Budget Pressure Matter? *Wiga: Jurnal Penelitian Ilmu Ekonomi, 14*(1), 1-12.

Udeh, S. N., & Nwadialor, E. (2016). Evaluation of effectiveness of internal audit in the Nigerian public sector. *European Journal of Business, Economics and Accountancy, 4*(3).

Weekes-Marshall, D. (2020). The role of internal audit in the risk management process: A developing economy perspective. *Journal of Corporate Accounting & Finance, 31*(4), 154-165.