

The Role of External Auditors in Mediating the Relationship Between Internal Audit and Sustainable Procurement

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Abstract

Despite the implementation of internal control mechanisms, procurement activities within State-Owned Enterprises (SOEs) remain highly susceptible to fraudulent practices. This study investigates how the effectiveness of internal audits impacts sustainable procurement, while also examining the moderating role of external auditors. Employing a quantitative research design based on survey distributed to internal auditors and procurement professionals in SOEs. A total of 130 individuals, including auditors, managers, and procurement specialists, participated in the study. Data analysis was conducted using PLS-SEM. The findings reveal that internal audit competence, independence, and management support significantly affect sustainable procurement through internal audit effectiveness, with the role of external auditors further strengthening this relationship. This research is expected to provide a practical contribution to strengthening the effectiveness of internal control to support public procurement. This research is aimed for developing internal control theory from both the elements and objectives aspects.

Keywords: Competency, Independency, Internal Control effectiveness, Management Support, Procurement

1. Introduction

Government policy continues to emphasize strategies that promote equitable economic development and rapid national progress through the procurement of goods and services (PBJ). One of its key objectives is to expand market access for vendors utilizing domestically produced goods, thereby addressing the procurement needs of the public sector (LKPP, 2022). Prioritizing domestic products in public procurement has proven to significantly contribute to sustainable economic growth, as highlighted in previous studies (Weiss & Thurbon, 2006), (Walker & Brammer, 2009). (Azwar, 2016) found that government expenditure in the procurement sector positively influences economic indicators, with approximately 91.12% of economic performance variation attributed to government purchasing activities. Furthermore, the Indonesian administration, under President Joko Widodo, has consistently encouraged state-owned enterprises (SOEs) to take an active role in infrastructure and development projects (Kim, 2019).

The government has improved the SOE goods and services procurement business process through an

approach to improving the organizational structure of procurement and electronic systems for PBJ (Wibowo, 2018). Improvements to the organizational structure are carried out by revising the structure using a hierarchical approach to become functional with the aim of creating a monitoring process between actors procuring goods and services. (Nurmandi & Kim, 2015) find that the quality of human resources plays a major role in supporting the successful implementation of electronic PBJ followed by leadership commitment, reliable planning and management systems, clear policies and regulations, integrated information systems, standardization and adequate technological infrastructure.

SOEs (SOE) were formed to contribute to the country's economy. (BPS, 2022) noted that during 2022 the total operational expenditure of SOE, both expenditure for business activities and operational support, reached IDR 1,926 trillion. So that expenditure on business activities and operational support can be carried out efficiently and able to achieve the intended use, it is necessary to implement a strong internal control system and be able to provide

assurance on every expenditure (BPK, 2013). The vulnerability of irregularities in the PBJ has brought international attention to making it part of sustainable development through the Sustainable Development Goal (SDG) instrument. The goal of SDG in number 12 is to campaign for the sustainability of SOE PBJ which is in line with the national plans and strategies of each country

Internal auditors act as independent evaluators within the organization, providing valuable insight to management and stakeholders regarding the effectiveness of governance processes and the reliability of financial reporting (IIA, 2017). Promoting organization accountability is the primary mechanism of internal audit function prior the external auditor one. accountability and transparency within organizations. In the absence of independent external evaluation, internal auditors were essential in upholding the credibility of financial reporting, identifying inaccuracies, and recommending enhancements to internal control systems and operational procedures (Pooe et al., 2022). (Anin et al., 2022) found that internal audits of government PBJ, either partially or simultaneously, were able to become effective governance tools to improve management of government expenditure. The results of this research are in line with agency theory.

(Bianchi, 2010) stated that SOE needs internal control to strengthen accountability in decision making. SOE that prioritizes accountability in decision making relies heavily on the internal control effectivity (Liu et al., 2021). The re are some benefit that came from the interaction between the SOE goods and services procurement process and the consulting services provided by internal audit (Baltos et al., 2018). The management process for PBJ will be harmonious and efficient, which can be characterized by measurable achievement of goods and services procurement objectives and controllable risks. However, (Mohamad Azmi & Ismail, 2023) dan (Abdulhussein et al., 2023) found that the weak internal control will encourage the fraud risk in the procurement process. Internal audit standards require that internal maintain independence in carrying out performance audits to maintain audit quality. (Sumiyana et al., 2021) find that in developing countries such as Indonesia, the implementation of performance audits is influenced by political and ideological hegemony which can damage auditor independence and reduce the quality of audits. To maintain the independence and sustainability of internal audit (Amoako et al., 2023) argued that the effectiveness of internal control mechanisms, coupled with robust risk management practices and organizational responsiveness, can significantly contribute to the sustained implementation of internal control systems.

Drawing upon a review of existing literature and prior empirical studies, this research was designed to address the following key questions: (1) What is the

relationship between internal audit effectiveness and the procurement of goods and services (PBJ) within State-Owned Enterprises (SOEs) and their affiliated entities? and (2) Does the role of external auditors moderate the influence of internal audit effectiveness on PBJ in these organizations? Accordingly, the primary objective of this study is to investigate the linkage between internal audit effectiveness and PBJ within SOEs and their affiliates, and to assess whether external auditor involvement moderates this relationship. This research is difference from the previous research by Karikari Appiah et al., (2022) with the topic of modelling the effectiveness of internal audits on the procurement of sustainable goods and services with the mediation of value for money audits. We address the external auditor as moderating variable in relationship of the influence of internal audit effectiveness on sustainable PBJ. This is based on (Quick & Henrizi, 2019) that the roles of external auditors cannot be combined directly because of the differences in responsibilities between internal auditors and external auditors. This study is intended to offer valuable insights for stakeholders, particularly senior leadership within state-owned enterprises and their shareholders, by presenting empirical evidence that the effectiveness of sustainable procurement (PBJ) is significantly shaped by the quality of internal control systems. In addition, the research aims to evaluate the moderating role of external auditors in influencing the relationship between internal audit effectiveness and sustainable procurement practices within SOEs and their affiliated entities. The research is expected to provide alternative solutions to the leadership of SOE organizations so that they can optimize the elements of competence, independence, education and knowledge, experience of internal auditors as part of strong and effective internal control. It is hoped that effective internal control and the role of external auditors will bring success to the goal of procuring goods and services that are appropriate, beneficial, efficient and have an impact on improving the economy and community welfare while still paying attention to aspects of the ecological environment.

2. Hypothesis Development

Institution Theory

(DiMaggio & Powell, 2000) states that companies have a tendency to act according to the characteristics of the industry through three methods, namely coercive, imitation and normative. Institutional coercion occurs when an organization adapts certain features or traits due to coercion or conditions set by the government or society. Imitation institutionalism occurs when one organization imitates another organization by means of benchmarking, comparative studies or by using consultant services. Meanwhile, normative institutionalism occurs when a professional group tries to define work methods and procedures in order to control new members and legitimize

professional independence. Business entities involved in the process of procuring goods and services will try to make adjustments both coercively and imitatively in order to participate in the selection process to become providers. This happens because the process of procuring goods and services has been regulated clearly and firmly in regulations issued by the government.

Contingency Theory

Contingency Theory states that there is not only one best way or method of leadership that can be successful in all situations or circumstances because leadership that is successful or effective in one particular situation may not immediately be successful when faced with different circumstances or situations or it can also be counterproductive. (Fiedler, 2006). Contingency Theory believes that the best method in leadership is very dependent on the situational variables being faced and one best method cannot be directly adopted in different situations. Several researchers have used contingency theory to test leadership models. (Waters, 2013) states that contingency theory is able to describe leadership styles in the communications industry. Meanwhile, leadership styles in the field of small and medium businesses were researched by (Vidal et al., 2017). On the other hand, (Abba et al., 2018) stated that contingency theory can be optimally useful for identifying leadership styles for the needs of human resource development plans. Using the basis of contingency theory, (Karikari Appiah et al., 2022) internal auditors need the stakeholders participation so that internal control can run effectively. Internal auditors need external examiners role and support from top management so that internal control can interact with the parties involved in governance.

Internal control

According to (Moeller, 2011), internal control is a comprehensive process shaped by the involvement of top leadership, all managerial levels, and organizational personnel, aimed at providing reasonable assurance in achieving objectives related to operational efficiency, financial reporting reliability, and adherence to regulatory requirements. Enhancing the quality of internal control—through certification initiatives and structured data management—is considered an effective approach to mitigating the risk of fraud (Westhausen, 2017). Quoting several research results that have been conducted, (Pooe et al., 2022) emphasize that internal control effectiveness is shaped by multiple factors, including the competence and expertise of internal auditors, the robustness of audit procedures, and the quality of interactions between internal audit functions and both the board of directors and executive management. (Turetken et al., 2020) further suggest that effectiveness can also be assessed through both demand-side measures—such as internal

control self-assessments—and supply-side indicators, such as stakeholder satisfaction evaluations.

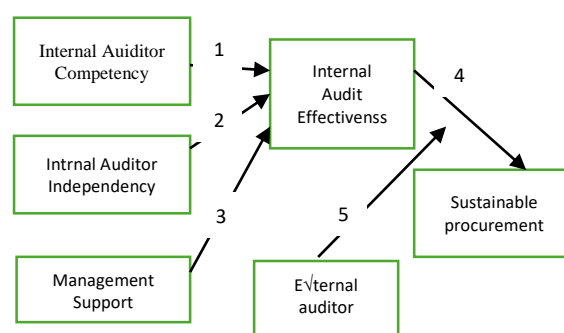
Public Procurement

The development of the SOEs' procurement system is an essential part of the agenda for the transformation process to realize justice in building a government system that is increasingly clean and authoritative (good governance and clean government) (Kim & Sumner, 2021). The transformation process is an effort to bring Indonesia into a country with better governance, cleaner and free from personal, group or group interests (Listiyanto, 2012). Government procurement methods for products and services, such as the provision of road facilities, bridges, telecommunications infrastructure, etc., enable the development of infrastructure and amenities to promote economic growth. Presidential issued Regulation concerning Procurement of Government Goods/Services, It was the first to regulate government PBJ in separate statutory regulations. For government-owned business entities or SOE, the Presidential Regulation regulating PBJ is only binding for the PBJ sourced in whole or in part from the APBN or APBD. Meanwhile, the PBJ in each SOE refers to the Minister of SOE Regulation No. 8 of 2019 concerning General Guidelines for the Procurement of BUMN Goods and Services.

The measurement scale and determinants of internal audit effectiveness were adopted from (Mihret & Woldeyohannis, 2008) and (Getie Mihret & Wondim Yismaw, 2007) and the measurement scale for Sustainable PBJ (SPP) was adopted from (Meehan & Bryde, 2011).

The research hypothesis:

Figure 1 : the research hypothesis
Source : processed by researcher



H1: Auditor competency has a positive effect on internal audit effectiveness

As emphasized by the Institute of Internal Auditors (IIA, 2017), competency and skills are the basic requirements needed by internal auditors to carry out effective internal audits (Bailey, 2010). Internal auditors must have the education required for auditing, fulfill professional qualifications, attend training, and experience field work to improve and also contribute to

organizational performance (O. A. Ali & Owais, 2012)(Getie Mihret & Zemenu Woldeyohannis, 2008).

H2: Auditor independence has a positive effect on internal audit effectiveness

Independence can be interpreted as objective, honest, free from pressure from any authority (IIA, 2017). Internal auditor independence is an important element of effective internal audit (Al-Akra et al., 2016). However, the independence of internal auditors can be disrupted when they come into contact with aspects of power at the central or regional government level (Sumiyana et al., 2021).

H3: Top Management support has a positive effect on the effectiveness of internal audit

Management support is very important for the success of internal audits (Mustika, 2015). Managerial support plays a crucial role in facilitating the work of internal auditors by providing essential resources such as funding, training, travel opportunities, exposure to updated procedures, and financial support for professional certification (Drogalas et al., 2015). Backing from senior leadership ensures that internal audit functions are adequately resourced to fulfill their responsibilities and mandates. Moreover, such support enables the recruitment of qualified personnel and the provision of ongoing training and capacity development initiatives (Cohen & Sayag, 2010).

H4: The effectiveness of internal audit has a positive effect on sustainable PBJ

Continuous evaluation of procurement systems enables companies to examine and assess their procurement procedures in order to pinpoint areas that require improvement; guarantee adherence to industry standards, internal controls, and legal requirements; and minimize risk, fraud, and waste by streamlining procurement procedures (Karikari Appiah et al., 2022). Internal audit's function is to offer impartial, independent assurance and consulting procedures that enhance organizational operations and add value (Gormly, 2014). In addition, by employing tools such as financial audits, performance audits, and advisory or consulting services, an effective internal audit function contributes to the continuous evaluation and enhancement of organizational processes, particularly in the domains of risk management, internal control, and governance (Grandia et al., 2015).

H5: The role of external auditors moderates the positive influence of internal audit effectiveness on Sustainable PBJ

Ensuring accountability of public funds is the primary goal of audits (A. M. Ali et al., 2010). The significance of cooperation between internal and external auditors is emphasized by Internal and External Audit Standards (Karikari Appiah et al., 2022). According to Quick and Henrizi (2019), coordination guarantees sufficient audit coverage, minimizes effort duplication, and lowers external audit expenses. (Quick & Henrizi, 2019). Studies indicate that strong relationships between internal and external auditors play a crucial

role in delivering value to both external stakeholders and the organization (Alzeban & Gwilliam, 2014).

3. Research Methodology

This research use quantitative method with a survey approach. The respondents are internal auditors and actors procuring goods and services within SOEs, whether owned directly by the state or through indirect participation such as SOE subsidiaries. The analytical tool used in this research is SEM-PLS, which is a robust form of analysis that can analyze several endogenous variables, mediator variables and exogenous variables in one analysis (Carrión et al., 2017) (Nitzl et al., 2016). This research uses primary data in the form of questionnaires to internal auditors and goods and services procurement officials within SOE and its affiliated companies that conduct in second semester of 2023. The number of sampling required is 100 research samples where the minimum sampling number is ten times the number of relationships between the variables studied (Hair et al., 2019).

The operational variables in this research are summarized from (Bailey, 2010), (O. A. Ali & Owais, 2012) and (Getie Mihret & Zemenu Woldeyohannis, 2008) for the definition of internal auditor competency. The independence of internal auditors are summarized from (IIA, 2017), (Al-Akra et al., 2016) and (Sumiyana et al., 2021). While management support is derived from (Mustika, 2015), (Cohen & Sayag, 2010) and (Drogalas et al., 2015). External auditor are summarized from (A. M. Ali et al., 2010), (Quick & Henrizi, 2019) and (Alzeban & Gwilliam, 2014). For the effectiveness of internal auditor are summarized from (Gormly, 2014), (Grandia et al., 2015) and (Karikari Appiah et al., 2022).

The questionnaire was created in four parts, namely general information about respondents, questions related to the effectiveness of internal audits, the concept of audit probity and variables that make up sustainable procurement of goods/services. The questionnaire was created on five Likert scales, where a value of one indicates the respondent strongly disagrees and a scale of 5 indicates the respondent strongly agrees with the question given. Data will be processed through the following stages:

1. Before commencing data analysis, the collected field data were examined for missing values, duplicate entries, and incomplete responses.
2. The data were analyzed utilizing Partial Least Squares (PLS) and Structural Equation Modeling (SEM) techniques, employing the SMART-PLS software.
3. The initial phase of the analysis was dedicated to validating the measurement scales.
4. The subsequent phase focused on evaluating the structural model, particularly the path coefficients.

An interpretation of the data analysis results was subsequently conducted. This research uses a survey method among internal auditors and officials or

managers in the PBJ who work in SOEs (SOE) and their affiliated companies. Before distributing the questionnaire to potential respondents, the research team asked for the willingness of internal auditors and managers of PBJ within SOE and its affiliated companies to become survey respondents via electronic mail. After the potential respondents expressed their willingness, the research team sent an official letter to the Head of the Internal Audit Department so that they could assign or ask internal auditors within the company to become respondents (official letter requesting to become respondents to the Head, Internal Auditor and officials for PBJ in the environment SOE and its affiliated companies as attached). After the time specified in the research respondent request letter has passed, respondents who are willing to provide answers to the survey submitted must not exceed 30 answers. To increase the number of respondents in order to meet the academic principles as stated by (Hair et al., 2019) the research team used a survey request method for internal auditors and goods and services procurement officials within SOE and its affiliated companies through direct communication with media tools (WhatsApp application). The research team received 130 responses to requests to fill out the questionnaire directly.

The internal auditors who were respondents worked in business entities owned directly by the state or indirectly through subsidiaries owned by state-owned companies. The research team sent official letters to the Authority or management of a number of SOEs asking internal auditors who work within SOEs to become respondents to this receipt survey. The following are the categories of respondents who answered the questionnaire in full which can be grouped.

TABLE 1
Categories of Respondents

a. Educational level

No	Educational level	Amount
1	Diploma III	7
2	Undergraduate (S1)	103
3	Graduate (S2)	19
4	Doctoral Studies (S3)	1

b. SOE Category

SOE Identity	Amount	SOE Identity	Amount
PT Perkebunan Nusantara Holding	72	PT Perkebunan Nusantara II	8
PT Perusahaan Listrik Negara	11	PT Sinergi Gula Nusantara	3
PT Perkebunan Nusantara IV	2	PT Badak NGL	3
PT Jaminan Pembiayaan Askrido Syariah	1	PT Perkebunan Nusantara VI	6
PTPN IX	3	PT AirNav	1

SOE Identity	Amount	SOE Identity	Amount
PT Berdikari	1	PTPN XII	4
PTPN XIV	2	PT SMI	1
Perum Perhutani	1	PTPN I	7
PTPN VIII	3	PTPN XII	4

c. Title or Position

No	Title or Position	Amount
1	Assistant of Superintendent	11
2	Auditor	24
3	Head of SPI/Head of SPI Division/Head of SPI Subdivision	28
4	Head of Subdivision/Head of Division/Procurement Manager/PBJ	19
5	Supervisory Staff	13
6	Procurement Staff and others	35

4. RESULT AND DISCUSSION

Path Analysis

This study employs a model comprising three independent variables, one mediating variable, one moderating variable, and one dependent variable. The independent variables include internal audit independence, auditor competence, and management support. The mediating variable is internal audit effectiveness, while the moderating variable is the role of the external auditor. The dependent variable under investigation is sustainable procurement practices. Each independent variable was operationalized based on definitions derived from academic literature and translated into a series of statements. Each construct was measured using five to six items, which were administered to respondents through a structured questionnaire. The collected responses were analyzed using the SmartPLS 3 software. The relationships among these variables were modeled using a path analysis framework, as illustrated in the structural model presented below.

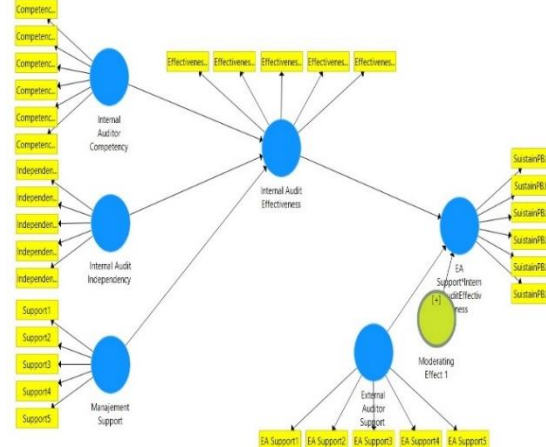


Figure 2. Path Model Research
Source: processed with Smart PLS 3

When the convergent validity test was carried out by comparing the values of the outer loading factors for each indicator, there were two indicators that had values below 0.70, namely independence indicator 2 and management support 4 so they were excluded from the path model. Therefore, the Path Model in Figure 4.1 above must be changed by removing the independence indicator 2 and management support 4 in order to meet the outer loading factor value above 0.7. The Path Model scheme after removing these two indicators can be described as follows:

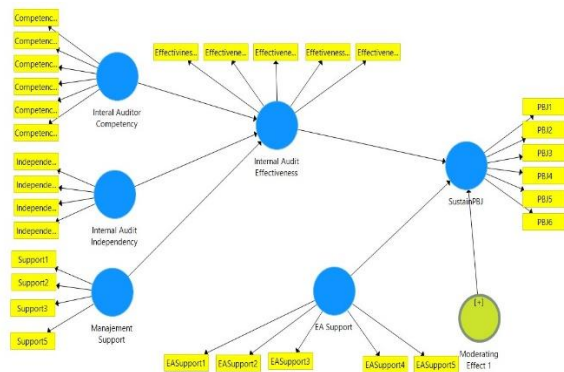


Figure 3. Adjusted Path Model
Source: processed with Smart PLS 3

Evaluation of Indicator Variables

Validity test

The first stage to find out whether the measurement indicator variable is able to provide an overview of the test results is to test the loading factor indicator (Hair et al., 2019). A loading factor that has a value above 0.70 can be argued that the construct has described more than 50% of the variance indicators, thereby providing an overview of the level of acceptance of the reliability of the research model. Meanwhile (Sihombing & Arsani, 2022) claims that loading factor values above 0.60 can be categorized as high for the construct they want to measure. The results of the outer loading factor test in this research have shown values that are above 0.70. These results inform that the construct has described the survey's reliability indicators.

Table 2. Validity Test

Variable	Management Support	EIA * Eksternal Auditor	Internal Audit Effectivity	External Auditor	Internal Audit Independence	Internal Auditor Competence	Moderating Effect 1
IA *EA							0,937
EA1			0,851				
EA2			0,850				
EA3			0,853				
EA4			0,884				
EA5			0,829				
Ind1					0,902		
Ind3					0,910		
Ind4					0,730		
Ind5					0,834		
Comp1						0,845	
Comp2						0,853	
Comp3						0,871	
Comp4						0,788	
Comp5						0,834	
Comp6						0,734	
PBJ1		0,799					
PBJ2		0,881					
PBJ3		0,906					
PBJ4		0,829					
PBJ5		0,901					
PBJ6		0,698					
Role EA1				0,859			

Role EA2				0,883			
Role EA3				0,811			
Role EA4				0,786			
Role EA5				0,755			
Supp1	0,851						
Supp2	0,775						
Supp3	0,896						
Supp5	0,842						

Source : : processed with Smart PLS 3

AVE Value

In addition to assessing factor loadings, construct validity can also be evaluated through the Average Variance Extracted (AVE). A construct is considered valid if its AVE exceeds 0.50. As shown in the AVE table, all measured variables meet this criterion, with AVE values greater than 0.50.

Table 3. AVE Value Test

	Average Variance Extracted (AVE)
Management Support	0,710
EIA*Eksternal Auditor	0,704
Internal Audit Effectivity	0,729
External Auditor	0,672

Internal Audit Independence	0,717
Internal Auditor Competence	0,676
Moderating Effect 1	1,000

Source : : processed with Smart PLS 3

Discriminant Validity

Discriminant validity can be evaluated through cross-loading analysis, which involves comparing each indicator's loading on its designated construct with its loadings on alternative constructs. Adequate discriminant validity is established when an indicator demonstrates a stronger association with its respective construct than with any others. The findings of this study confirm that all indicators load most heavily on their intended constructs, thereby providing evidence of satisfactory discriminant validity.

Tabel 4. Discriminant Validity Test

Variabel	Managemen t Support	EIA* EA	Internal Audit Effectiveness	External Auditor	IA Inde	IA Comp	Moderatin g Effect 1
IA *EA	-0,149	0,166	-0,183	0,189	-0,246	-0,178	1,000
EA1	0,610	0,468	0,851	0,487	0,738	0,775	-0,219
EA2	0,530	0,509	0,850	0,441	0,661	0,607	-0,218
EA3	0,639	0,523	0,853	0,373	0,666	0,646	-0,103
EA4	0,651	0,644	0,884	0,536	0,705	0,713	-0,175
EA5	0,700	0,610	0,829	0,447	0,683	0,694	-0,075
Ind1	0,614	0,404	0,729	0,444	0,902	0,756	-0,296
Ind3	0,647	0,479	0,739	0,464	0,910	0,733	-0,240
Ind4	0,551	0,490	0,616	0,457	0,730	0,655	-0,128
Ind5	0,571	0,411	0,652	0,446	0,834	0,784	-0,151
Comp1	0,665	0,516	0,709	0,500	0,746	0,845	-0,174
Comp2	0,648	0,422	0,703	0,416	0,784	0,853	-0,248
Comp3	0,632	0,455	0,668	0,442	0,727	0,871	-0,231
Comp4	0,509	0,452	0,607	0,433	0,651	0,788	-0,155
Comp5	0,601	0,436	0,665	0,486	0,732	0,834	-0,145
Comp6	0,546	0,485	0,621	0,532	0,609	0,734	0,098
PBJ1	0,516	0,799	0,602	0,581	0,466	0,486	0,088
PBJ2	0,527	0,881	0,541	0,569	0,429	0,495	0,142
PBJ3	0,498	0,906	0,579	0,488	0,466	0,461	0,120
PBJ4	0,480	0,829	0,566	0,538	0,485	0,463	0,154
PBJ5	0,462	0,901	0,561	0,592	0,445	0,503	0,181

PBJ6	0,268	0,698	0,374	0,374	0,322	0,402	0,167
Role EA1	0,477	0,584	0,511	0,859	0,536	0,525	0,183
Role EA2	0,505	0,596	0,526	0,883	0,526	0,585	0,113
Role EA3	0,387	0,506	0,385	0,811	0,377	0,398	0,142
Role EA4	0,367	0,437	0,383	0,786	0,366	0,446	0,190
Role EA5	0,365	0,442	0,368	0,755	0,340	0,343	0,158
Supp1	0,851	0,495	0,655	0,448	0,679	0,700	-0,142
Supp2	0,775	0,505	0,519	0,447	0,453	0,435	-0,062
Supp3	0,896	0,460	0,690	0,462	0,630	0,689	-0,147
Supp5	0,842	0,429	0,603	0,394	0,592	0,612	-0,141

Source : processed with Smart PLS 3

Another method for assessing discriminant validity is the Fornell–Larcker criterion, which compares the square root of a construct’s Average Variance Extracted (AVE) with its correlations with other constructs in the model. Discriminant validity is considered adequate when the square root of the AVE for a given construct is greater than its correlation coefficients with any other construct, indicating that the construct shares more variance with its indicators than with other constructs.

Tabel 5. Fornell and Larcker Test

	Management Support	EIA *Eksternal Auditor	Internal Audit Effectivity	External Auditor	Internal Audit Indi	Internal Auditor Compt	Moderating Effect 1
Management Support	0,842						
EIA*Eksternal Auditor	0,557	0,839					
Internal Audit Effectivity	0,737	0,649	0,854				
External Auditor	0,518	0,633	0,537	0,820			
Internal Audit Independence	0,705	0,524	0,810	0,533	0,847		

Internal Auditor Competence	0,733	0,560	0,807	0,569	0,864	0,822	
Moderating Effect 1	-0,149	0,166	-0,183	0,189	-0,246	-0,178	1,000

Source:processed with Smart PLS 3

From the results above, it can be seen that the AVE root value (value on the main diagonal) is greater than each correlation between the latent variables (values below the other main diagonal).

Reliability Test

Construct reliability was evaluated through composite reliability and Cronbach’s alpha, both of which were calculated based on the indicator blocks corresponding to each construct. Reliability is deemed acceptable when the values for both measures surpass the benchmark of 0.70. The analysis reveals that all constructs exceed this threshold, confirming that the measurement model exhibits strong internal consistency and reliable construct measurement.

EIA*Eksternal Auditor	0,914	0,934
Internal Audit Effectivity	0,907	0,931
External Auditor	0,878	0,911
Internal Audit Independence	0,866	0,910
Internal Auditor Competence	0,903	0,926
Moderating Effect 1	1,000	1,000

Source : processed with Smart PLS 3

Table 6. Reliability Test

	Cronbach's Alpha	Composite Reliability
Management Support	0,863	0,907

The structural model was assessed by analyzing the R-square values of the dependent variables to evaluate the model's explanatory capacity. Additionally, path coefficients were examined to determine the magnitude and direction of the relationships between independent and dependent variables. The statistical significance of these relationships was assessed through the corresponding *t*-statistics derived from the bootstrapping procedure.

	R Square	R Square Adjusted
EIA*Eksternal Auditor	0,569	0,559
Internal Audit Effectivity	0,730	0,724

The adjusted R-square value of 0.724 indicates that the independent variable, internal audit effectiveness, accounts for 72.4% of the variance in the dependent variable, Sustainable PBJ, while the remaining 27.6% is explained by other factors not included in the model. In another model, the adjusted R-square value of 0.559 suggests that internal audit effectiveness, along with the external auditor's role as a moderating variable and their interaction, collectively explain 55.9% of the variance in Sustainable PBJ, with the remainder influenced by external variables outside the current model framework.

	EIA * Eksternal Auditor	Internal Audit Effectivity
Management Support		0,108
EIA*Eksternal Auditor		
Internal Audit Effectivity	0,386	
External Auditor	0,147	
Internal Audit Independence		0,124
Internal Auditor Competence		0,073
Moderating Effect 1	0,080	

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Management Support-> Internal Audit Effectivity	0,257	0,263	0,075	3,435	0,000
Internal Audit Effectivity-> SustainPBJ	0,515	0,505	0,089	5,760	0,000
Eksternal Auditor -> SustainPBJ	0,318	0,336	0,085	3,724	0,000

The Q^2 statistic serves as an indicator of the predictive relevance of a structural model. It assesses the extent to which the model, along with its estimated parameters, can accurately reproduce the observed data. A Q^2 value greater than zero signifies that the model possesses predictive relevance for a specific endogenous construct, whereas a value equal to or below zero indicates insufficient predictive capability. The Q^2 value is typically derived using the following formula:

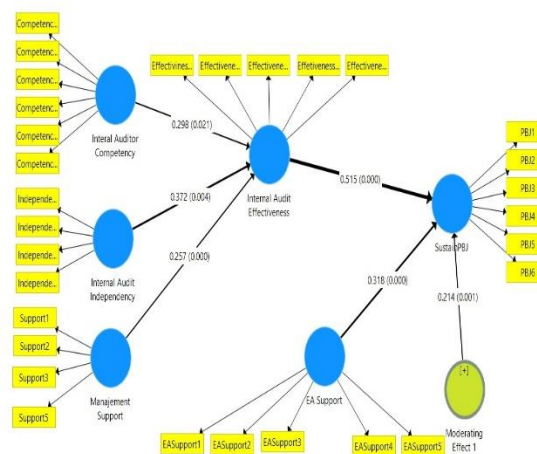
$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2) \dots (1 - R_p^2)$$

$$Q^2 = 1 - (1 - 0.569) = 0.569$$

The evaluation of the model's Goodness of Fit (GoF) is conducted using the R^2 values of the dependent latent variables, which follow the same interpretive principles as those in regression analysis. A model is generally considered to have a strong overall fit when the GoF value exceeds 0.38. The GoF value can be computed using the following formula:

The model is perfect because the GoF value is 0.650, which is already large because it is above 0.38

The results of hypothesis testing can be described in the following chart:



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Internal Audit Independence-> Internal Audit Effectivity	0,372	0,371	0,135	2,762	0,003
Internal Auditor Competence-> Internal Audit Effectivity	0,298	0,294	0,145	2,053	0,020
Moderating Effect 1 -> SustainPBJ	0,214	0,216	0,063	3,426	0,000

Source: processed with Smart PLS 3

The first hypothesis testing results indicate that auditor competence has a statistically significant and positive effect on the effectiveness of internal audits. The coefficient value is 0.298, with a *p*-value of 0.02 (less than the significance level of 0.05), and a *t*-statistic of 2.053, which exceeds the critical *t*-value of 1.64. These findings suggest that, holding other variables constant, a one-unit increase in auditor competence is associated with a 0.298 increase in internal audit effectiveness.

The second hypothesis analysis reveals a significant and positive relationship between auditor independence and internal audit effectiveness, with a path coefficient of 0.372. The *p*-value of 0.003 is below the 0.05 threshold, and the *t*-statistic of 2.762 exceeds the critical value of 1.64. This implies that a one-point increase in the level of auditor independence leads to a 0.372-point improvement in internal audit effectiveness, assuming all other variables remain constant.

The third hypothesis findings show that support from top management significantly enhances internal audit effectiveness, as evidenced by a coefficient of 0.257. With a *p*-value of 0.000 and a *t*-statistic of 3.435—both indicating strong significance—this result suggests that

a one-unit increase in perceived management support contributes to a 0.257 increase in internal audit effectiveness, under the assumption that other influencing factors are held constant.

The fourth hypothesis analysis found that internal audit effectiveness is found to have a significant and positive impact on sustainable procurement practices, with a coefficient value of 0.515. The associated *p*-value of 0.000 and *t*-statistic of 5.760 (well above the threshold of 1.64) confirm the strength of this relationship. This means that a one-point increase in internal audit effectiveness is expected to enhance sustainable PBJ by 0.515, assuming other variables are unchanged.

The fifth hypothesis finding is the moderation analysis indicates that the role of external auditors significantly influences the relationship between internal audit effectiveness and sustainable procurement outcomes. The moderation effect yields a coefficient of 0.214, with a *p*-value of 0.000 and a *t*-statistic of 3.426. This suggests that the presence of external auditors enhances the effect of internal audit effectiveness on sustainable PBJ by an additional 0.057 points, assuming other variables are constant.

Table 10. Indirect Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Management Support-> Internal Audit Effectivity -> SustainPBJ	0,132	0,132	0,042	3,119	0,001
Internal Audit Independence-> Internal Audit Effectivity -> SustainPBJ	0,191	0,188	0,078	2,459	0,007
Internal Auditor Competence-> Internal Audit Effectivity -> SustainPBJ	0,153	0,149	0,080	1,929	0,027

Source: processed with Smart PLS 3

The hypothesis testing results reveal that top management support has a significant and positive indirect effect on sustainable procurement (PBJ), mediated by internal audit effectiveness. This mediated relationship is evidenced by a path coefficient of 0.132, a *p*-value of 0.001 (below the 0.05 significance level), and a *t*-statistic of 3.119, which exceeds the critical value of 1.64. These findings suggest that a one-unit increase in management support indirectly enhances sustainable PBJ by 0.132 units through improvements in internal audit effectiveness, assuming other variables are held constant.

Similarly, auditor independence also demonstrates a statistically significant indirect influence on sustainable PBJ via internal audit effectiveness. The relationship is supported by a coefficient of 0.191, a *p*-value of 0.007, and a *t*-statistic of 2.459—all indicating

significance. This implies that greater independence among internal auditors contributes to more effective audits, which in turn positively affect sustainable procurement outcomes by 0.191 points, *ceteris paribus*. Furthermore, auditor competence is found to exert a significant indirect positive effect on sustainable PBJ through the mediating role of internal audit effectiveness. The relationship is quantified with a coefficient of 0.153, a *p*-value of 0.027, and a *t*-statistic of 1.929, all exceeding the required statistical thresholds. This indicates that enhancing auditor competencies by one unit results in a 0.153-point improvement in sustainable procurement performance via strengthened internal audit practices, assuming other influencing factors remain unchanged.

Discussion

These results are consistent with the principles of Institutional Theory, which suggest that robust internal

control mechanisms can promote regulatory compliance among procurement vendors by fostering legitimacy and accountability. Simultaneously, Contingency Theory highlights the significance of adaptive managerial support in enhancing the internal audit function's ability to respond to evolving organizational conditions. The study demonstrates that both managerial backing and external auditor oversight play critical roles in strengthening internal audit effectiveness, thereby supporting the advancement of sustainable public procurement practices.

5. CONCLUSION

This study provides empirical evidence that internal audit effectiveness functions both as a direct influence and as a mediating variable in the relationship with sustainable procurement (PBJ). The findings further demonstrate that internal audit independence, auditor competence, and management support exert indirect effects on sustainable PBJ, mediated through internal audit effectiveness. Additionally, the study confirms that the role of external auditors serves as a significant moderating factor, strengthening the impact of internal audit effectiveness on sustainable procurement outcomes within state-owned enterprises (SOEs).

These findings are intended to inform and encourage SOE boards of directors to offer comprehensive support for internal auditors, particularly in maintaining their independence. Such independence should be ensured by preventing interference from top management, including the board, in the execution of audit activities. Furthermore, internal auditors should be able to conduct their responsibilities free from any conflicts of interest, thereby upholding the objectivity and integrity of the internal control function. Furthermore, the independence of internal auditors can also be realized in the form of access to carry out internal control over all departments. Independence can also be realized by providing direct communication media to the directors to report any control activities that have been implemented. Furthermore, the board if director of SOE can develop the competency of internal auditors by providing opportunities to take part in ongoing education and training activities. The board of direktor of SOE are also required to provide infrastructure support such as information technology and adequate funding for internal control operational activities. The board of director of SOE can provide support in the form of active involvement in preparing work plans. Furthermore, management support is also provided in the form of follow-up on every recommendation proposed by the internal auditor To strengthen the effectiveness of internal control in order to support sustainable procurement, it is necessary to maintain good communication and relationships with external auditors.

This research is limited by the number of participants, which does not represent all state-owned enterprises in Indonesia. The researcher recommends that the distribution of participants be broader, encompassing state-owned enterprises in the financial, banking, and infrastructure sectors.

References

- Abba, M., Yahaya, L., & Suleiman, N. (2018). Explored and Critique of Contingency Theory for Management Accounting Research Why Corruption in Nigeria View project Explored and Critique of Contingency Theory for Management Accounting Research. *Journal of Accounting and Financial Management*, 4(5), 40–50. www.iiardpub.org
- Abdulhussein, A. S., Al-Refiay, H. A. N., & Wahhab, A. M. A. (2023). The impact of internal auditing on corruption: Evidence from the emerging market. *Journal of Governance and Regulation*, 12(1, special issue), 367–375. <https://doi.org/10.22495/jgrv12i1siart15>
- Al-Akra, M., Abdel-Qader, W., & Billah, M. (2016). Internal auditing in the Middle East and North Africa: A literature review. *Journal of International Accounting, Auditing and Taxation*, 26, 13–27. <https://doi.org/10.1016/j.intaccaudtax.2016.02.004>
- Ali, A. M., Selamat, M. H., Gloeck, J. D., & Heang, L. T. (2010). Internal audit in the state and local governments of Malaysia: problems and solutions. *International Journal of Accounting and Finance*, 2(2), 192. <https://doi.org/10.1504/IJAF.2010.032088>
- Ali, O. A., & Owais, W. O. (2012). Internal Auditors' Intellectual (Knowledge) Dimension in Creating Value for Companies - Empirical Study of Jordanian Industrial Public Shareholding Companies. *International Business Research*, 6(1). <https://doi.org/10.5539/ibr.v6n1p118>
- 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/10.1016/j.intaccaudtax.2014.06.001>
- Amoako, G. K., Bawuah, J., Asafo-Adjei, E., & Ayimbire, C. (2023). Internal audit functions and sustainability audits: Insights from manufacturing firms. *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2192313>
- Azwar, A. (2016). Peran Alokatif Pemerintah melalui Pengadaan Barang/Jasa dan Pengaruhnya Terhadap Perekonomian Indonesia. *Kajian Ekonomi Dan Keuangan*, 20(2), 149–167. <https://doi.org/10.31685/kek.v20i2.186>

- Bailey, J. (2010). *The IIA's Global Internal Audit Survey: a Component of the CBOK study Core Competencies for Today's Internal Auditor Report II*. <https://hiir.hr/UserDocsImages/CoreCompetencies.pdf>
- Baltos, G., Doni, L., & Balodis, J. (2018). The international public procurement evolution: New strategic challenges met in collaboration with internal audit advisory services. *Academic Journal of Interdisciplinary Studies*, 7(1), 193–205. <https://doi.org/10.2478/ajis-2018-0020>
- Bianchi, C. (2010). Improving performance and fostering accountability in the public sector through system dynamics modelling: From an “external” to an “internal” perspective. *Systems Research and Behavioral Science*, 27(4), 361–384. <https://doi.org/10.1002/sres.1038>
- BPK. (2013). *Pentingnya Efektivitas Penerapan Sistem Pengendalian Intern dan Pengelolaan Risiko Manajemen di Lingkungan BUMN*. 5, 6–8.
- BPS. (2022). *Statistik Keuangan BUMN dan BUMD*.
- Carrión, G. C., Nitzl, C., & Roldán, J. L. (2017). Mediation Analyses in Partial Least Squares Structural Equation Modeling: Guidelines and Empirical Examples. In *Partial Least Squares Path Modeling* (pp. 173–195). Springer International Publishing. https://doi.org/10.1007/978-3-319-64069-3_8
- 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>
- DiMaggio, P. J., & Powell, W. W. (2000). The iron cage revisited institutional isomorphism and collective rationality in organizational fields. In *Economics Meet Sociology in Strategic Management*. Emerald Group Publishing Limited.
- 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. <https://doi.org/10.5897/JAT2015.0182>
- Fiedler, F. E. (2006). *The Contingency Model: A Theory of Leadership Effectiveness* (J. Levine & R. Moreland (eds.)).
- Getie Mihret, D., & Wondim Yismaw, A. (2007). Internal audit effectiveness: an Ethiopian public sector case study. *Managerial Auditing Journal*, 22(5), 470–484. <https://doi.org/10.1108/02686900710750757>
- Getie Mihret, D., & Zemenu Woldeyohannis, G. (2008). Value-added role of internal audit: an Ethiopian case study. *Managerial Auditing Journal*, 23(6), 567–595. <https://doi.org/10.1108/02686900810882110>
- Gormly, J. (2014). What are the challenges to sustainable procurement in commercial semi-state bodies in Ireland? *Journal of Public Procurement*, 14(3), 395–445. <https://doi.org/10.1108/JOPP-14-03-2014-B004>
- Grandia, J., Steijn, B., & Kuipers, B. (2015). It is not easy being green: increasing sustainable public procurement behaviour. *Innovation: The European Journal of Social Science Research*, 28(3), 243–260. <https://doi.org/10.1080/13511610.2015.1024639>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- IIA. (2017). *Implementation Guide 2120*.
- Karikari Appiah, M., Tettevi, P. K., Amaning, N., Opoku Ware, E., & Kwarteng, C. (2022). Modeling the implications of internal audit effectiveness on value for money and sustainable procurement performance: An application of structural equation modeling. *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2102127>
- Kim, K. (2019). Using partially state-owned enterprises for development in Indonesia. *Asia Pacific Business Review*, 25(3), 317–337. <https://doi.org/10.1080/13602381.2019.1575660>
- Kim, K., & Sumner, A. (2021). Bringing state-owned entities back into the industrial policy debate: The case of Indonesia. *Structural Change and Economic Dynamics*, 59, 496–509. <https://doi.org/10.1016/j.strueco.2021.10.002>
- Listiyanto, A. (2012). PEMBAHARUAN REGULASI PENGADAAN BARANG DAN JASA PEMERINTAH. *Jurnal Rechts Vinding: Media Pembinaan Hukum Nasional*, 1(1), 113. <https://doi.org/10.33331/rechtsvinding.v1i1.109>
- Liu, J., Ma, Y., Appollini, A., & Cheng, W. (2021). How external stakeholders drive the green public procurement practice? An organizational learning perspective. *Journal of Public Procurement*, 21(2), 138–166. <https://doi.org/10.1108/JOPP-04-2020-0035>
- LKPP. (2022). *Laporan Kinerja Lembaga Kebijakan Pengadaan Barang dan Jasa Pemerintah Tahun 2022*.
- Meehan, J., & Bryde, D. (2011). Sustainable procurement practice. *Business Strategy and the Environment*, 20(2), 94–106. <https://doi.org/10.1002/bse.678>
- Moeller, R. (2011). *COSO Enterprise Risk Management* (2nd ed.). John Wiley and Son.
- Mohamad Azmi, S. M., & Ismail, S. (2023). Weaknesses of Malaysian public procurement: a review of auditor general's reports. *Journal of Financial Reporting and Accounting*, 21(5), 999–1020. <https://doi.org/10.1108/JFRA-05-2021-0132>
- Mustika, A. C. (2015). Factors Affecting The Internal

- Audit Effectiveness. *Akuntansi & Auditing*, 12(2), 110–122.
- Nitzl, C., Roldan, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modeling. *Industrial Management & Data Systems*, 116(9), 1849–1864. <https://doi.org/10.1108/IMDS-07-2015-0302>
- Nurmandi, A., & Kim, S. (2015). Making e-procurement work in a decentralized procurement system: A comparison of three Indonesian cities. *International Journal of Public Sector Management*, 28(3), 198–220. <https://doi.org/10.1108/IJPSM-03-2015-0035>
- Pooe, J. B., Barac, K., Plant, K., & Steyn, B. (2022). Signalling of internal audit effectiveness. *South African Journal of Accounting Research*, 36(3), 213–249. <https://doi.org/10.1080/10291954.2021.2000727>
- Quick, R., & Henrizi, P. (2019). Experimental evidence on external auditor reliance on the internal audit. *Review of Managerial Science*, 13(5), 1143–1176. <https://doi.org/10.1007/s11846-018-0285-0>
- Sihombing, P., & Arsani, A. (2022). *Aplikasi SmartPLS untuk Statistisi Pemula* (Aly Rasyid (ed.); 1st ed.). PT Dewangga Energi Internasional.
- Sumiyana, S., Hendrian, H., Jayasinghe, K., & Wijethilaka, C. (2021). Public sector performance auditing in a political hegemony: A case study of Indonesia. *Financial Accountability and Management*, April, 691–714. <https://doi.org/10.1111/faam.12296>
- Turetken, O., Jethefer, S., & Ozkan, B. (2020). Internal audit effectiveness: operationalization and influencing factors. *Managerial Auditing Journal*, 35(2), 238–271. <https://doi.org/10.1108/MAJ-08-2018-1980>
- Vidal, G. G., Campdesuñer, R. P., Rodríguez, A. S., & Vivar, R. M. (2017). Contingency theory to study leadership styles of small businesses owner-managers at Santo Domingo, Ecuador. *International Journal of Engineering Business Management*, 9, 1–11. <https://doi.org/10.1177/1847979017743172>
- Walker, H., & Brammer, S. (2009). Sustainable procurement in the United Kingdom public sector. *Supply Chain Management*, 14(2), 128–137. <https://doi.org/https://doi.org/10.1108/13598540910941993>
- Waters, R. D. (2013). The role of stewardship in leadership: Applying the contingency theory of leadership to relationship cultivation practices of public relations practitioners. *Journal of Communication Management*, 17(4), 324–340. <https://doi.org/10.1108/JCOM-05-2012-0041>
- Weiss, L., & Thurbon, E. (2006). The business of buying American: Public procurement as trade strategy in the USA. *Review of International Political Economy*, 13(5), 701–724. <https://doi.org/10.1080/09692290600950597>
- Westhausen, H. (2017). The escalating relevance of internal auditing as anti-fraud control. *Journal of Financial Crime*, 24(2), 322–328. <https://doi.org/https://doi.org/10.1108/JFC-06-2016-0041>
- Wibowo, R. A. (2018). Mencegah Korupsi Pengadaan Barang Jasa (Apa yang Sudah dan yang Masih Harus Dilakukan?). *Integritas*, 1(1), 37. <https://jurnal.kpk.go.id/index.php/integritas/article/view/113>