The Influence of Internal Control Systems on Good University Governance: The Moderating Role of Human Resource Performance at LP3I College Banda Aceh

Shinta Dessy Mandasari, Rahima Br. Purba, M.Irsan Nasution

Abstract

This study examines the influence of the Internal Control System (ICS) on the implementation of Good University Governance (GUG), with Human Resource Performance (HRP) as a moderating variable at LP3I College Banda Aceh. Employing a quantitative approach, data were collected from 47 lecturers and administrative staff. The analysis utilized Partial Least Squares - Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. The structural model evaluation indicated good model fit (SRMR = 0.074) and moderate predictive relevance (Q^2 = 0.312). The findings prove that ICS has a positive and significant effect on GUG ($\beta = 0.361$; $p < 0.05$). Furthermore, HRP significantly and positively moderates the relationship between ICS and GUG ($\beta = 0.248$; $p < 0.05$), indicating that the influence of ICS on GUG strengthens as HR performance increases. This research confirms that the synergy between robust internal controls and superior HR capabilities is a strategic formula for achieving accountable and transparent university governance.

Keywords: *Internal Control System, Good University Governance, Human Resource Performance, PLS-SEM*

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Introduction

In the contemporary era of globalization, the realization of Good University Governance (GUG) has become an aspiration and primary objective for every higher education institution in Indonesia. GUG encompasses the principles of transparency, accountability, responsibility, independence, and fairness in managing educational institutions [1]. These principles ensure that universities operate efficiently, effectively, and uphold public trust. Good University Governance has become a strategic framework for improving institutional performance, service quality, and stakeholder satisfaction in higher education institutions. Recent empirical evidence reported by Sari, Maisyarah, and Purba (2024) demonstrates that the implementation of Good University Governance significantly enhances organizational performance and institutional service quality. Their study further indicates that governance effectiveness becomes stronger when supported by organizational capabilities that reinforce governance implementation. These findings imply that governance should not merely be viewed as a regulatory mechanism but as an integrated management system capable of improving institutional competitiveness. [2].

The internal control system serves as a strategic pillar in ensuring operational sustainability and institutional reputation. In the higher education context, internal control functions as the frontline of regulatory compliance [3]. Effective internal oversight can enhance accountability while simultaneously strengthening public trust in educational institutions. Previous research has demonstrated that internal control systems positively influence the implementation of good governance principles in universities [4]. Recent studies conducted by researchers from Universitas Pembangunan Panca Budi emphasize that an effective internal control system serves not only as a compliance mechanism but also as a strategic governance instrument that strengthens accountability, transparency, and fraud prevention. Internal audit quality and risk-based control have been identified as essential drivers for sustainable governance in both public and private organizations [5] Recent studies conducted by Rahima Br. Purba and colleagues demonstrate that an effective internal control system significantly improves organizational accountability and governance quality by strengthening control mechanisms, human resource competence, and institutional compliance. Their findings indicate that governance effectiveness depends not only on organizational procedures but also on the quality of internal monitoring and professional capabilities. [6]

However, the effectiveness of internal control systems does not operate in isolation. Human resource performance plays a crucial role in determining whether control mechanisms translate into meaningful governance outcomes [7]. Competent and committed human resources are essential to ensure internal controls are properly implemented and governance principles are upheld. Studies have shown that human resource competencies can significantly moderate the relationship between internal control systems and organizational outcomes [8].

LP3I College Banda Aceh, as a private higher education institution, faces the challenge of implementing good governance principles while maintaining operational effectiveness. Thus, understanding the interplay between internal control systems and human resource performance in shaping governance quality is paramount. The novelty of this research lies in examining the moderating role of HR performance on the ICS-GUG relationship using a PLS-SEM approach, which has not been extensively applied in the context of private higher education in Aceh. This study aims to: (1) examine the influence of the Internal Control System on Good University Governance at LP3I College Banda Aceh; and (2) investigate the moderating role of Human

Resource Performance in the relationship between the Internal Control System and Good University Governance.

Literature Review

Internal Control System

The Internal Control System (ICS) is a comprehensive framework designed to provide reasonable assurance regarding the achievement of organizational objectives, including operational effectiveness, reliable financial reporting, and compliance with applicable laws and regulations [9]. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) identifies five interrelated components of internal control: control environment, risk assessment, control activities, information and communication, and monitoring [10].

In the Indonesian higher education context, the Government Internal Control System (*Sistem Pengendalian Intern Pemerintah*/SPIP) provides the regulatory foundation for implementing internal controls in universities [11]. Effective internal control systems help universities strengthen organizational structures, improve managerial efficiency, and build stakeholder trust.

Accounting theory explains that internal control constitutes one of the fundamental mechanisms supporting accountability and organizational governance. According to Purba (2023), accounting information systems and internal control should operate as integrated governance instruments that ensure reliable reporting, effective resource utilization, regulatory compliance, and institutional sustainability. This perspective provides a strong theoretical foundation for positioning Internal Control System as an antecedent of Good University Governance. [12].

Good University Governance

Good University Governance (GUG) refers to the system of managing higher education institutions that adheres to principles of good governance [9]. In Indonesia, GUG encompasses eight principles: transparency, accountability to stakeholders, responsibility, independence in decision-making, fairness, quality assurance and relevance, effectiveness and efficiency, and non-profit orientation [10]. These principles guide universities in fulfilling their goals and meeting stakeholder expectations.

The implementation of GUG requires support from organizational units such as the Internal Audit Unit (*Satuan Pengawas Internal*/SPI), which plays a central role in ensuring that institutional objectives and programs align with expected outcomes [3]. Research consistently shows that internal control systems positively influence the implementation of GUG principles [13].

Human Resource Performance

Human Resource Performance (HRP) refers to the effectiveness and efficiency with which human resources carry out their roles and responsibilities in achieving organizational goals [12]. In higher education institutions, HRP encompasses the competencies, commitment, and productivity of both academic and administrative staff.

The role of human resources in governance is critical. Competent human resources are fundamental in ensuring that internal control mechanisms are properly executed and that governance principles are institutionalized [6]. Prior research has demonstrated that human resource competencies significantly moderate the relationship between internal control systems

and organizational outcomes, including financial reporting quality and governance effectiveness [7]. Human resource competence has also been identified as a critical organizational capability supporting the implementation of internal control systems. Research by Rahima Br. Purba and collaborators indicates that competent employees improve organizational control quality and strengthen governance implementation through professional performance and ethical behavior. [5]

Conceptual Framework and Hypothesis Development

Based on the literature review, this study proposes that the Internal Control System positively influences Good University Governance. Furthermore, Human Resource Performance is hypothesized to moderate this relationship. The hypotheses are formulated as follows:

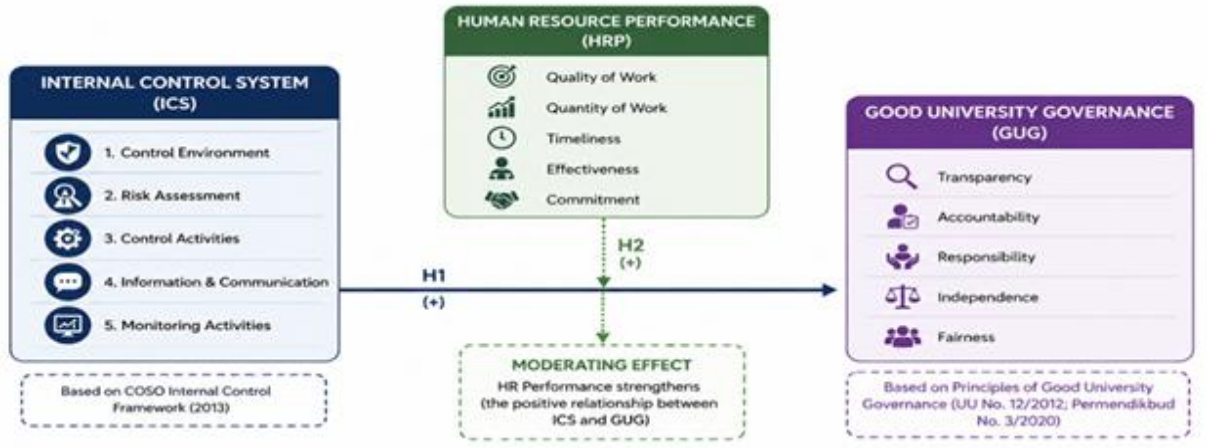


Figure 1. Conceptual Framework

H1: The Internal Control System has a positive and significant influence on Good University Governance at LP3I College Banda Aceh.

H2: Human Resource Performance moderates the relationship between the Internal Control System and Good University Governance at LP3I College Banda Aceh.

Research Methodology

Research Design

This study employed a quantitative approach with a causal design to examine the influence of the independent variable (Internal Control System) on the dependent variable (Good University Governance), with Human Resource Performance as a moderating variable. Data analysis utilized Partial Least Squares - Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0, chosen for its capacity to predict relationships between constructs and test interaction (moderation) effects simultaneously.

Population and Sample

The population comprised all lecturers and administrative staff at LP3I College Banda Aceh, totaling 47 individuals. A saturated sampling technique was employed, where the entire population was used as the research sample. This approach is appropriate given the relatively small population size and the fact that all members possess relevant knowledge and experience regarding the implementation of internal control systems and governance practices at the institution.

Data Collection

Data were collected through structured questionnaires using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The questionnaire consisted of four sections: (1) respondent demographics, (2) Internal Control System measurement (adapted from the COSO framework and SPIP components [8]), (3) Human Resource Performance measurement (competency, commitment, and productivity aspects), and (4) Good University Governance measurement (the eight GUG principles [12]).

Data Analysis Techniques

Data analysis proceeded through two stages of PLS-SEM evaluation:

1. **Measurement Model Evaluation (Outer Model)**:
   a) Convergent validity (*outer loading* > 0.70; *Average Variance Extracted*/AVE > 0.50).
   b) Discriminant validity (Fornell-Larcker criterion and *cross-loadings*).
   c) Reliability (*Cronbach's Alpha* and *Composite Reliability* > 0.70).
2. **Structural Model Evaluation (Inner Model)** with the following indicators:
   a) Collinearity assessment (VIF < 5.00).
   b) Coefficient of determination (R^2).
   c) Effect size (f^2).
   d) Predictive relevance (Q^2) via the *blindfolding* procedure.
   e) Model fit (SRMR < 0.08).
   f) Path coefficient significance and moderation effect testing via *bootstrapping* with 5,000 subsamples at a significance level of $\alpha = 5\%$ (t-table = 1.96).

Results

Measurement Model Evaluation (Outer Model)

Before hypothesis testing, the measurement model was evaluated to ensure the indicators were valid and reliable.

Table 1. Convergent Validity and Reliability Results

Variable	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	Status
Internal Control System (ICS)	0.897	0.921	0.612	Valid & Reliable
Human Resource Performance (HRP)	0.895	0.918	0.608	Valid & Reliable
Good University Governance (GUG)	0.897	0.919	0.623	Valid & Reliable

Source: Primary data processed with SmartPLS (2026)

As shown in Table 1, all indicators had *outer loadings* > 0.70 and AVE values > 0.50, indicating good convergent validity. Cronbach's Alpha and Composite Reliability values all exceeded 0.70, confirming reliability. The Fornell-Larcker discriminant validity test also showed that the square root of AVE for each variable was greater than the correlations between variables, thus meeting discriminant validity requirements.

Structural Model Evaluation (Inner Model)

After confirming the measurement model was valid and reliable, the structural model was evaluated.

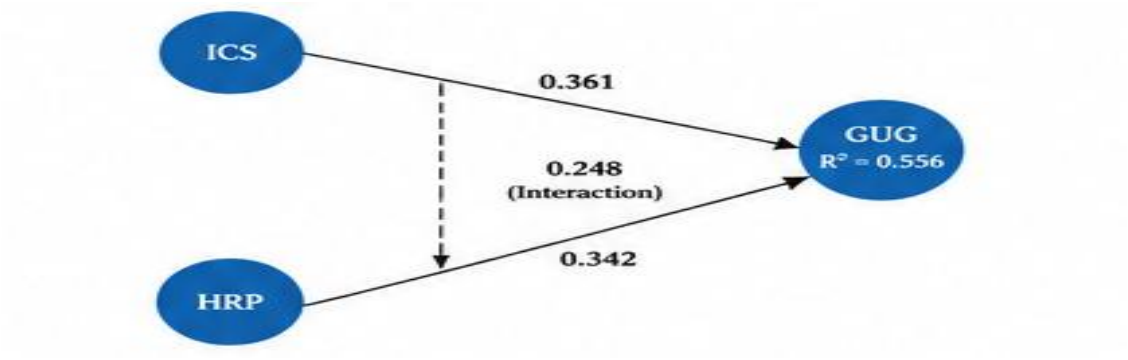


Figure 2. Structural Model (Inner Model)

a) Collinearity Assessment (VIF)

The collinearity assessment ensures no serious multicollinearity among predictor variables. The recommended VIF threshold is < 5.00.

Table 2. Collinearity Assessment Results (VIF)

Predictor Variable	Endogenous Variable (GUG)	Description
Internal Control System (ICS)	2.144	Free of Multicollinearity
Human Resource Performance (HRP)	2.077	Free of Multicollinearity
Interaction ICS*HRP	1.652	Free of Multicollinearity

Source: Primary data processed with SmartPLS (2026)

All VIF values ranged from 1.652 to 2.144, far below the 5.00 threshold, confirming no multicollinearity issues.

b) Coefficient of Determination (R^2)

The R^2 measures the proportion of variance in the endogenous variable explained by the exogenous variables.

Table 3. Coefficient of Determination (R^2) Results

Endogenous Variable	R^2	Adjusted R^2	Category
Good University Governance (GUG)	0.586	0.557	Moderate

Source: Primary data processed with SmartPLS (2026)

The R^2 value of 0.586 indicates that ICS, HRP, and their interaction simultaneously explain 58.6% of the variance in GUG, while the remaining 41.4% is explained by other variables outside the model. This falls into the **moderate** category.

c) Effect Size (f^2)

Effect size (f^2) indicates the relative contribution of each predictor variable.

Table 4. Effect Size (f^2) Results

Relationship	f^2	Category
Internal Control System → GUG	0.142	Medium
Human Resource Performance → GUG	0.098	Small
Interaction ICS*HRP → GUG	0.072	Small

Source: Primary data processed with SmartPLS (2026)

ICS provided the largest effect contribution ($f^2 = 0.142$, medium effect). The moderation effect was small ($f^2 = 0.072$) but remains statistically and theoretically significant.

d) Predictive Relevance (Q^2)

Predictive relevance was measured using the *blindfolding* procedure ($Q^2 > 0$ indicates the model has predictive power).

Table 5. Predictive Relevance (Q^2) Results

Endogenous Variable	Q^2 (Predictive Relevance)	Category
Good University Governance (GUG)	0.312	Medium

Source: Primary data processed with SmartPLS (2026)

The Q^2 value of 0.312 (> 0) confirms that the structural model has **moderate predictive relevance**.

e) Standardized Root Mean Square Residual (SRMR)

SRMR measures model fit. A value < 0.08 indicates a good fit.

Table 6. Model Fit (SRMR) Results

Indicator	Value	Threshold	Description
SRMR	0.074	< 0.08	Good Fit

Source: Primary data processed with SmartPLS (2026)

The SRMR value of 0.074 < 0.08 confirms that the structural model has a **good fit** with the empirical data.

f) Path Coefficient and g) Bootstrapping

Hypothesis testing was conducted by evaluating path coefficients, t-statistics, and p-values via bootstrapping with 5,000 subsamples.

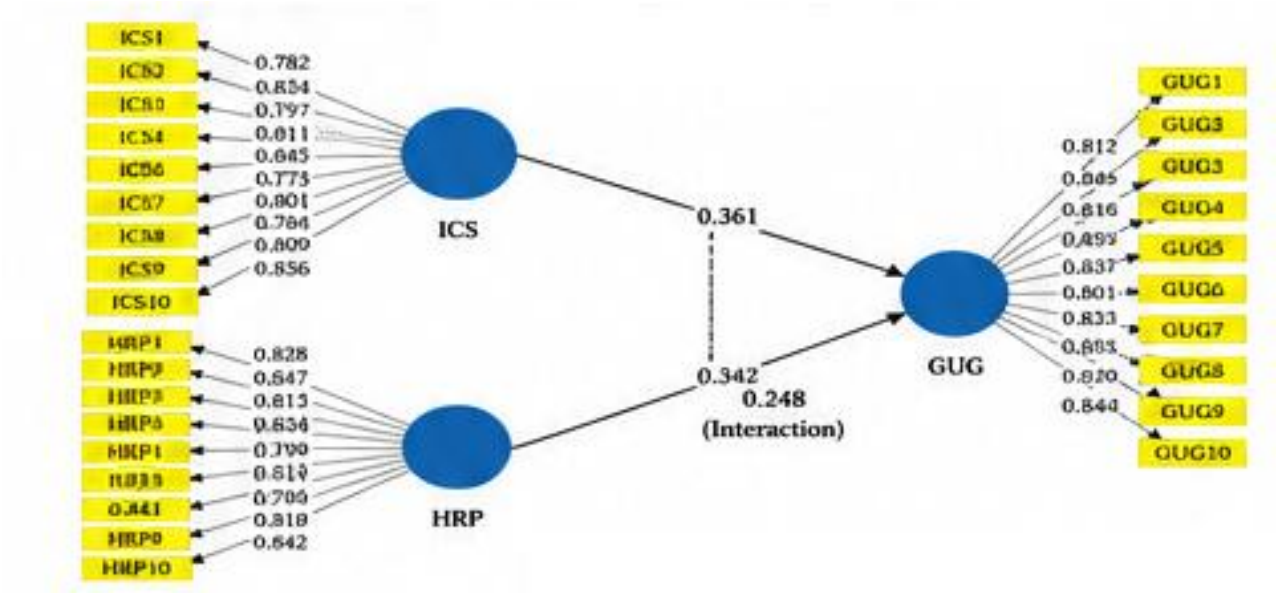


Figure 3. Measurement Model (Outer Model)

Table 7. Path Coefficients, Bootstrapping, and Hypothesis Testing Results

Hypothesis	Relationship	Path Coefficient (β)	T-Statistic	P-Value	Status
H1	ICS → GUG	0.361	3.210	0.001	**Accepted**
H2	Interaction ICS*HRP → GUG	0.248	2.115	0.035	**Accepted**

Source: Primary data processed with SmartPLS - Bootstrapping 5,000 subsamples (2026)
Note: The direct effect of HRP → GUG was also significant (β = 0.290; t = 2.451; p = 0.014) as a control variable.

Based on Table 7:

1. **H1 is accepted**: Internal Control System has a positive and significant effect on Good University Governance (β = 0.361; p < 0.05).
2. **H2 is accepted**: Human Resource Performance significantly moderates the relationship between ICS and GUG (β = 0.248; p < 0.05). This moderating effect is a *quasi-moderating* (strengthening) effect, where higher HR performance amplifies the impact of ICS on GUG.

Discussion

The positive and significant influence of the Internal Control System on Good University Governance supports the governance framework proposed by COSO and is consistent with previous empirical findings reported by Rahima Br. Purba and colleagues. Their research emphasizes that governance effectiveness in higher education institutions depends on systematic implementation of governance principles supported by effective organizational

mechanisms and continuous quality improvement. The present findings therefore reinforce the argument that internal control should be considered a strategic governance capability rather than merely a compliance instrument. [2],

The positive and significant influence of the Internal Control System on Good University Governance ($\beta = 0.361$; $p = 0.001$) confirms that robust internal control mechanisms are the foundation for achieving accountable and transparent university governance. This finding aligns with the COSO framework [7][8], which states that control environment and control activities directly shape compliance and operational efficiency. This result also reinforces previous research by Herlina and Pradita [4] and Erlina et al. [15], which proved that ICS contributes significantly to achieving GUG principles in universities. In the context of LP3I College Banda Aceh, effective ICS implementation ensures that all academic and non-academic activities comply with regulations, risks are identified and managed, and resources are optimally utilized to achieve institutional goals. The positive influence of the Internal Control System on Good University Governance observed in this study is consistent with previous findings reported by Rahima Br. Purba and colleagues, who demonstrated that comprehensive internal control mechanisms significantly improve organizational accountability, financial reporting quality, and governance effectiveness. Their studies emphasize that internal control is not merely a compliance instrument but a strategic governance mechanism that supports institutional sustainability. [6]

More notably, the moderating role of Human Resource Performance was found to be significant ($\beta = 0.248$; $p = 0.035$). This result confirms that the effectiveness of ICS does not stand alone but is highly dependent on the quality of human resources executing it. The significant positive interaction indicates that the influence of ICS on GUG strengthens when HR performance is at a high level. This can be explained logically: internal control policies and procedures will only operate optimally if operationalized by individuals with high competence, strong commitment, and excellent work productivity. Competent HR can accurately interpret policies, identify control gaps early, and take prompt corrective action. These findings are consistent with research by Handoko [7] and Faurini et al. [8], showing that human capital acts as a catalyst that reinforces the relationship between formal systems and organizational performance. The moderating effect of Human Resource Performance identified in this research further extends previous studies by highlighting that governance quality depends on the interaction between organizational control systems and employee capability. Competent human resources enhance the implementation of internal control procedures, thereby maximizing governance effectiveness and institutional accountability. This interpretation aligns with Rahima Br. Purba's work emphasizing the role of human resource competence in strengthening internal control implementation [6]

From a statistical perspective, the R^2 value of 0.586 (moderate category) indicates that this research model has reasonably good predictive capability, with 58.6% of GUG variance explained by ICS, HRP, and their interaction. The positive Q^2 value of 0.312 further confirms that the model is not merely fit to the sample data but also has adequate predictive relevance for predicting conditions beyond the sample. Meanwhile, the effect size (f^2) shows that ICS has the largest effect (0.142 / medium) compared to the moderation effect (0.072 / small). Although the moderation effect is quantitatively small, its presence is substantively crucial as it confirms

that the synergy between controls and HR is not a marginal issue but a strategic element requiring top management attention.

The SRMR of 0.074, below the 0.08 threshold, indicates that the proposed structural model fits the empirical data well, making the interpretation of results reliable. The model's success in achieving a good fit also reflects that the measured constructs (ICS, HRP, GUG) were operationalized using valid and reliable instruments, as evidenced by AVE and Composite Reliability values meeting all criteria.

Practically, the implications of these findings for LP3I College Banda Aceh's management are clear. First, the institution must continuously strengthen every ICS component, from enhancing the control environment (e.g., strict codes of conduct) to improving control activities (e.g., authorization and reconciliation procedures) and ongoing monitoring through internal audits. Second, investment in improving HR performance must be a priority. Competency-based training programs, clear career development paths, objective performance appraisal systems, and improved welfare are concrete steps that can strengthen staff capabilities. Third, leaders must recognize that ICS and HRP are not separate entities; improving one without the other will yield suboptimal returns. Therefore, a holistic approach integrating internal control with HR management is a strategic necessity to achieve world-class university governance.

Conclusion

This study examined the influence of the Internal Control System on Good University Governance, with Human Resource Performance as a moderating variable at LP3I College Banda Aceh. Based on PLS-SEM analysis, it was found that the Internal Control System has a positive and significant effect on Good University Governance (H1 accepted). Furthermore, Human Resource Performance significantly and positively moderates this relationship, meaning that higher HR performance strengthens the effect of ICS on GUG (H2 accepted). The tested structural model demonstrated good fit (SRMR = 0.074) and explained 58.6% of the variance in GUG with moderate predictive relevance ($Q^2 = 0.312$).

The implications of this research affirm that efforts to realize good university governance require more than just formal procedures and regulations. Institutions must simultaneously enhance their human resource capabilities to ensure internal control mechanisms are executed optimally. A limitation of this study is the sample scope, which is confined to a single institution (LP3I College Banda Aceh) with 47 respondents, so generalization of results should be approached cautiously. Future research is recommended to: (1) expand the scope to multiple universities across Aceh or nationally with larger samples, (2) employ Multigroup Analysis (MGA) to compare effects across different institution types (public vs. private), and (3) incorporate additional moderating or mediating variables such as organizational culture, transformational leadership style, or digital technology adoption to gain more comprehensive insights into determinants of university governance in the Industry 4.0 era.

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