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The Effect of Internal Auditor Role, Risk Management Function, and Operational Risk Management Supervision on the Performance of Regional Development Bank (BPD) in the Sumatera Region with Information Technology Integration as a Moderating Variable

Armin Syahdin Kaban[1], Erlina[2], Sirojuzilam Hasyim[3]
[1]Universitas Sumatera Utara, Medan, Indonesia, armins.kaban@gmail.com
[2]Universitas Sumatera Utara, Medan, Indonesia, erlina@usu.ac.id
[3]Universitas Sumatera Utara, Medan, Indonesia, sirojuzilam@usu.ac.id

*Corresponding Author: armins.kaban@gmail.com[1]

Abstract: This study examines the effects of the internal auditor's role, risk management function, and operational risk management supervision on the performance of Regional Development Banks (BPD) in Sumatra region, with information technology integration serving as a moderating variable. A quantitative approach was employed, involving eight Regional Development Banks and 70 respondents. Data were collected through questionnaires and analyzed using Structural Equation Modeling Partial Least Squares (SEM-PLS) with SmartPLS 4 software. The findings reveal that the internal auditor's role and risk management function do not have a significant effect on bank performance. In contrast, operational risk management supervision has a positive and significant effect on performance. The moderation analysis indicates that information technology integration does not moderate the relationships between the internal auditor's role and bank performance or between the risk management function and bank performance. However, information technology integration significantly strengthens the positive effect of operational risk management supervision on bank performance. These findings highlight the importance of effective operational supervision and the strategic integration of information technology in enhancing the performance of Regional Development Banks in the Sumatra region.

Keywords: Internal Auditor Role, Risk Management Function, Operational Management Supervision, Information Technology Integration, Regional Development Banks Performance.

INTRODUCTION

The banking sector in Indonesia, particularly Regional Development Banks (BPDs), has experienced significant growth in recent years. This development has intensified the challenges

faced by banks amid economic dynamics, increasing demands for Good Corporate Governance (GCG), and the acceleration of digital transformation. Consequently, BPDs are required not only to achieve strong financial performance but also to maintain high standards of governance, regulatory compliance, and internal control effectiveness. In practice, bank performance is reflected in the effective management of both financial and non-financial resources, risk control, and the quality of internal oversight implemented by management (Tirtana et al., 2023). BPD possess distinctive characteristics, including substantial policy intervention, bureaucratic complexity, and heightened public accountability. These conditions make their performance highly dependent on the effectiveness of internal auditing, risk management, and operational management practices (Ahmad, 2022). Effective auditing assists management in identifying risks, preventing fraud, and improving corporate governance quality, thereby enhancing both financial and non-financial performance (Choiroh et al., 2024; Hartanto & Sefitriya, 2024). In addition to internal auditing, risk management serves as a key determinant of BPD performance. Based on the prudential banking principle, bank performance is strongly influenced by the ability to identify, measure, monitor, and control risks, particularly credit risk, operational risk, liquidity risk, and compliance risk (Ramadhani & Yudhayana, 2025).

Bank performance is also closely associated with the effectiveness of operational management. Efficient operational processes constitute valuable internal resources that can generate competitive advantages and improve organizational performance (Alhilwa & Kusuma, 2024). Therefore, enhancing operational management has become a strategic necessity for improving the performance of Regional Development Banks. A similar perspective was presented by Yulfiswandi et al. (2024), who emphasized that management plays a crucial role in overseeing banking operations to achieve targeted financial and non-financial performance outcomes. Based on the researcher's analysis, there are indications that the cases occurring within Regional Development Banks in the Sumatra region may be attributed to weak integration among key governance mechanisms, namely internal auditing, risk management, and operational management. To further support this argument, several relevant indicators representing both financial and non-financial performance are presented from Bank Sumut, Bank Aceh, and Bank Bengkulu, which serve as representative samples in this study.

Table 1. Overview of Operational and Financial Performance by Segment of PT Bank Sumut, 2021–2025

No	Performance Indicator	Years				
		2021	2022	2023	2024	2025
1	*Non Performing Loan* (NPL) *Gross*	3,09%	2,69%	2,38%	2,19%	3,12%
2	*Non Performing Loan (NPL) Net*	1,80%	1,21%	1,13%	0,92%	1,06%
3	Operating Expenses to Operating Income Ratio (BOPO)	78,12%	73,42%	74,82%	76,35%	79,20%
4	*Capital Adequacy Ratio* (CAR)	20,47%	20,13%	22,70%	21,16%	23,31%
5	*Net Proft Margin* (NPM)	17,36%	19,09%	19,20%	18,50%	15,98%

Source: Official Website of Bank Sumut, 2026.

Table 1. Overview of Operational and Financial Performance by Segment of PT Bank Aceh, 2021–2025

No	Performance Indicator	Years				
		2021	2022	2023	2024	2025
1	*Non Performing Loan* (NPL) *Gross*	2,85%	2,78%	2,60%	2,73%	2,51%
2	*Non Performing Loan (NPL) Net*	0,03%	0,04%	0,24%	0,53%	1,69%
3	Operating Expenses to Operating Income Ratio (BOPO)	77,23%	76,50%	75,39%	79,61%	81,63%
4	*Capital Adequacy Ratio* (CAR)	21,40%	22,05%	21,54%	22,53%	20,96%
5	*Net Proft Margin* (NPM)	114%	119%	98.32%	88,45%	74,84%

Source: Official Website of Bank Aceh, 2026.

Table 3. Overview of Operational and Financial Performance by Segment of PT Bank Bengkulu, 2021–2025

No	Performance Indicator	Years				
		2021	2022	2023	2024	2025
1	*Non Performing Loan* (NPL) *Gross*	0,91%	1,05%	1,34%	1,11%	1,47%
2	*Non Performing Loan (NPL) Net*	0,49%	0,5%	0,48%	0,38%	0,05%
3	Operating Expenses to Operating Income Ratio (BOPO)	86,07%	81,01%	88,47%	88,75%	84,95%
4	*Capital Adequacy Ratio* (CAR)	22,95%	24,52%	26,46%	25,13%	25,11%
5	*Net Proft Margin* (NPM)	110%	96,78%	145.00%	120.00%	134.00%

Source: Official Website of Bank Bengkulu, 2026.

The fluctuations observed in the NPL, BOPO, CAR, and profitability indicators across the three sample banks suggest that bank performance is influenced by various internal factors. Among these factors are the effectiveness of the internal auditor's role, the risk management function, and operational management supervision in supporting the achievement of organizational objectives. Furthermore, several phenomena identified during the study highlighted the growing importance of Information Technology (IT) integration as a critical factor influencing banking performance. In relation to the role of internal auditors, IT integration has the potential to enhance audit effectiveness through the use of integrated information systems, data analytics, and real-time monitoring capabilities, enabling more accurate, timely, and continuous oversight (Hassandi et al., 2025). Likewise, IT integration supports system-based risk management by facilitating the integrated identification, measurement, and monitoring of risks in real time. Reliable risk information systems enable banks to manage credit, operational, and liquidity risks more effectively. Moreover, IT integration promotes business process automation, accelerates transaction processing, reduces operational errors, and improves operational cost efficiency, thereby contributing to improved organizational performance (R. S. Nasution, 2025; S. K. Sari et al., 2024). Based on the background, identified phenomena, and empirical data presented, the following research problems are formulated:

1. Does the internal auditor's role have a positive effect on the performance of Regional Development Banks (BPDs) in the Sumatra region?
2. Does the risk management function have a positive effect on the performance of Regional Development Banks (BPDs) in the Sumatra region?
3. Does operational management supervision have a positive effect on the performance of Regional Development Banks (BPDs) in the Sumatra region?
4. Does information technology integration moderate the effect of the internal auditor's role on the performance of Regional Development Banks (BPDs) in the Sumatra region?
5. Does information technology integration moderate the effect of the risk management function on the performance of Regional Development Banks (BPDs) in the Sumatra region?
6. Does information technology integration moderate the effect of operational management supervision on the performance of Regional Development Banks (BPDs) in the Sumatra region?

Theoretical Framework

Stewardship Theory

Stewardship Theory was first introduced by Donaldson & Davis in 1991, which views company management not as self-interested agents, but as stewards who are honest and responsible. In this model, managers align their personal goals with organizational goals to maximize bank performance for the long-term benefit of all stakeholders (Haikal et al., 2026).

Internal audit, risk management, and operational management are part of mechanisms intended as stewards in this theory. From the perspective of stewardship theory, the existence of internal auditors has a strategic role in ensuring accountability and transparency within banking organizations. Furthermore, risk management is an important aspect in the banking industry which has a high level of uncertainty and complexity. Last, anagement as a steward has the responsibility to identify, measure, monitor, and control various risks that can affect bank stability and performance. In addition, operational management also plays an important role in determining the level of efficiency and effectiveness of banking activities.

Contingency Theory

Contingency Theory was introduced by Lawrence and Lorsch in 1967, which states that there is no single management system, organizational structure, or control mechanism that is generally the most effective for all organizations. In this study, internal auditors, risk management, and operational management are conceptually viewed as internal mechanisms that can improve BPD performance. However, in practice the influence of these three functions on performance does not always show consistent results, because the success of internal mechanisms is highly dependent on the suitability between organizational internal characteristics and other supporting factors (Hariro et al., 2024). Information technology integration in the context of this study is positioned as a contingency factor that determines the strength or weakness of the influence of internal auditors, risk management, and operational management on bank performance.

Enterprise Risk Management (ERM) Theory

Enterprise risk management (ERM) theory is a systematic and integrated framework for identifying, assessing, managing, and mitigating all potential risks at both strategic and operational levels of the company. As an approach, ERM describes a company's objective in optimizing organizational achievement and protecting company value from internal and external threats (Hasan et al., 2021). ERM theory is used as an applied theory in this study because ERM describes a managerial approach that can be directly implemented in organizational practice, especially banking institutions. ERM is designed to ensure that all risks faced by an organization can be identified, measured, monitored, and controlled in an integrated manner in every business process. With these characteristics, ERM is very relevant to explain how risk management and operational management should operate, as well as their impact on BPD performance.

Literature Review

Bank Performance

Bank financial performance is greatly influenced by the ability of internal auditors and management to control credit risk, minimize operational costs, and maintain asset quality. Meanwhile, non-financial performance is reflected in the level of regulatory compliance, effectiveness of internal control systems, speed and accuracy of services, and stability of operational processes (Patarowo et al., 2022). Research of (Hartanto & Sefitriya, 2024; Sihotang, 2025) state that bank performance is strongly influenced by the role of internal auditors. Internal auditors help detect irregularities, assess the effectiveness of internal controls, and provide recommendations for improving system weaknesses. In the reseacrh Charissa (2023), it is also stated that risk management can provide a positive contribution to bank performance. Through effective risk management, banks are able to maintain a balance between achieving business targets and controlling risk exposure, so that financial and non-financial performance can be improved sustainably (Yulfiswandi et al. 2024). The researcher also highlights the positive impact of digital banking adaptation through IT integration, which

can act as a strengthening factor for the influence of internal auditors, risk management, and operational management on bank performance (Nicholas et al., 2024). The researcher has grouped several dimensions of bank performance measurement used in this study is financial performance, operational performance and control and compliance performance.

The Role of Internal Auditor

Internal auditors are an independent and objective function within an organization tasked with providing assurance and consulting to improve the effectiveness of risk management, internal control, and governance processes. Conceptually, internal auditors act as an evaluative mechanism that assesses whether organizational activities have been carried out in accordance with policies, standard operating procedures, regulations, and principles of efficiency and effectiveness (Caroline et al., 2023). In general, internal auditors have three main roles, namely monitoring, assurance, and consulting roles. Internal auditors in BPD not only ensure compliance with internal policies but also banking regulations and prudential principles (Hakim & Suryatimur, 2022). Research findings by Nadiah et al. (2022) also state that effective internal auditors are able to identify potential deviations in credit processes, detect control weaknesses that may cause losses, and provide recommendations for system improvement. In research conducted by Afzal (2023); Apreku-djan et al. (2022); Rouault & Albertini (2021), it is also stated that good banking performance is essentially the result of effective and aligned supervision and internal control processes, both of which are within the scope of internal auditor duties.

Risk Management Function

Risk management is a systematic and continuous process designed to identify, analyze, evaluate, control, and monitor various risks that may hinder the achievement of organizational objectives (Yuwono & Vaddhano, 2024). In the context of BPD, risk management plays a very crucial role because banking activities involve high levels of risk. Credit risk, operational risk, liquidity risk, market risk, and compliance risk are the main risks that must be managed in an integrated manner (Ramadhani & Yudhayana, 2025). Research conducted by Alhan et al. (2022) states that effective risk management enables banks to maintain asset quality, optimize funding structure, and maintain stakeholder trust. Similar findings are also stated in studies by Ahsana & Swandari (2024); Judijanto et al. (2024); Natufe (2023), which state that good risk management can contribute to improving bank performance, both financially and non-financially. In addition, weak risk management can reduce reputation and public trust, which ultimately affects the long-term stability of the bank.

Operational Management Supervision

Operational management is a managerial function responsible for planning, organizing, implementing, and controlling all production and service processes within an organization so that they run effectively and efficiently (Alhilwa & Kusuma, 2024). In the context of BPD, operational management plays a very strategic role because banking activities depend heavily on accuracy and speed of service processes (Komalasari & Manda, 2022). Given that BPD operates in a strictly regulated environment and has public accountability responsibilities, any weakness in operational processes can create risks that significantly affect financial and reputational conditions. Therefore, operational management in BPD is not only aimed at improving efficiency but also maintaining the integrity and reliability of the banking system.

Information Technology (IT) Integration

Information Technology (IT) is a set of systems, hardware, software, networks, and procedures used to collect, process, store, and distribute information effectively and efficiently

(Asiyah & Subagyo, 2024). In the context of organizations or banking, IT integration refers to the use of coordinated information technology so that various business functions can operate in an integrated, fast, accurate, and real-time manner (Judijanto & Mansur, 2025). Research conducted by Hassandi et al. (2025); Irawan & Hanggara (2023); R. S. Nasution (2025) explains the significant role of IT in the banking industry. IT integration plays an important role in banking activities because banking operations are highly dependent on processing large and complex transaction data. Currently, the implementation of core banking systems, digital-based risk management systems, computer-based auditing, and electronic banking services are real forms of IT integration in banking operations (Indrajit et al., 2022). In BPD practices, IT integration is an important instrument to improve operational efficiency, strengthen internal control systems, and ensure regulatory compliance. In this study, the indicators for measuring IT integration are as follows: infrastructure quality and system integration, IT support for control and supervision function, digitalization of operational processes.

METHODS

The research method used in this study is a quantitative approach aimed at explaining phenomena in the form of relationships between variables through hypothesis testing that has been formulated previously. This study employs multiple linear analysis because it observes more than one independent variable (Santoso, 2010). Based on the type of data, this study uses primary data obtained from individual respondents. The data collection method is conducted through surveys by distributing questionnaires. The measurement scale used in this study is the Likert scale, which is used to measure an individual's attitude or perception toward a particular object (Sugiyono, 2015). All respondents' answers are analyzed using SmartPLS software with the following stages of analysis:

Descriptive Analysis

Before conducting model testing, this study first presents descriptive statistical analysis using SmartPLS. This analysis includes the calculation of mean, standard deviation, minimum, and maximum values for each construct indicator.

Model Evaluation

1. Measurement Model (Outer Model)

   The outer model in this study uses a reflective measurement model, which indicates the relationship from latent variables to their indicators. Validity testing is used to assess the extent to which the research instrument measures what it is intended to measure (Cooper et al., 2006). Reliability testing is used to measure the consistency of respondents' answers to the research instrument.The evaluation of the outer model includes:

Table 4. Validity and Reliability Assessment Criteria

Type of Test	Parameter	Rule of Thumbs
Convergent Validity	Loading Factor	≥ 0.70 for confirmatory research ≥ 0.60 for explanatory research
	Average Fariance Extracted (AVE)	≥ 0,50 for confirmatory research and explanatory research
Discriminant Validity	Fornell and Larcker	Square root of AVE > correlation between latent constructs
	Heterotrait-Monotrait Ratio (HTMT)	≤ 0,90
Reliability	Value of Reliability and HTMT	≥ 0.70 for confirmatory research, and 0.60–0.70 is still acceptable for explanatory research

Source: J.F. Hair et al., 2014

2. Structural Model (Inner Model)

The inner model analysis is conducted to examine the relationships between latent constructs in the study. This model describes the relationships between variables based on substantive theory. The structural model evaluation is assessed using:

R-Square (R^2): A higher R^2 value (closer to 1) indicates a stronger ability of the independent variables to explain the dependent variable (Latan & Ghozali, 2017).

Q-Square (Q^2): Q^2 is used to assess the predictive relevance of the model. A higher Q^2 value indicates a better model fit with the data (Ghozali, 2016).

Hypothesis Testing (Path Coefficient, t-test, and Moderation)

Hypothesis testing in this study is conducted using the bootstrapping method. The testing is based on t-statistics and p-values generated from the bootstrapping procedure. A relationship is considered significant if the t-statistic is greater than 1.96 at a 5% significance level ($\alpha = 0.05$) or if the p-value is less than 0.05. In addition, the path coefficient is used to indicate the direction and strength of the relationship between variables in the research model. In this study, path analysis is also used to test the moderation effect**,** by introducing an interaction term, which is the product of the independent variable and the moderating variable.

RESULTS AND DISCUSSION

Results

Descriptive Analysis Result

The indicators of all variables were incorporated into the questionnaire, and the responses obtained indicate generally positive perceptions across all constructs. Regarding the Internal Auditor Role, most respondents reported that auditors consistently ensure compliance with regulations and internal policies and actively monitor the implementation of audit recommendations. For the Risk Management Function, respondents largely agreed that risks are systematically identified, analyzed, controlled, and monitored on a regular basis. Risk considerations are also incorporated into decision-making processes, while corrective actions are undertaken to address identified risks. This indicates that risk management practices have been implemented effectively and contribute to organizational stability. Concerning Operational Management Supervision, respondents generally agreed that the bank has clear Standard Operating Procedures (SOPs), effective coordination among work units, integrated information flows, and routine performance evaluations. Bank Performance, respondents reported favorable assessments regarding profit achievement, operational cost control, reduction of recurring audit findings, capability to manage financial and non-financial risks, effectiveness in resolving non-performing loans, service quality, and regulatory compliance. Regarding information technology integration, respondents perceived that interconnected information systems, reliable IT infrastructure, digital audit processes, risk-monitoring systems, automated reporting mechanisms, and data reliability have been implemenetd effectively.

Outer Model Analysis Result

1. Convergent Validity Test Result

Based on the convergent validity test using the outer loading criterion with a minimum threshold of ≥ 0.70, most indicators met the convergent validity requirement. However, several indicators still exhibited outer loading values below 0.70, namely X2.1 (0.637), Y.3 (0.625), Y.4 (0.604), Z.6 (0.658), Z.7 (0.659), X1.1 (0.399), and X1.2 (0.538). Therefore, these indicators were removed or further evaluated to ensure that the measurement model satisfied the required convergent validity criteria.

Table 4. Convergent Validity Test Results: Outer Loading (Stage 1)

Indicator of Variable	Risk Management Function	Information Technology Integration	Bank Performance	Operational Risk Management Supevision	Internal Auditor Role
X2.1	0.637				
X2.2	0.855				
X2.3	0.831				
X2.4	0.796				
X2.5	0.862				
X3.1				0.788	
X3.2				0.849	
X3.3				0.755	
X3.4				0.770	
Y.1			0.775		
Y.2			0.727		
Y.3			0.625		
Y.4			0.604		
Y.5			0.755		
Y.6			0.751		
Z.1		0.700			
Z.2		0.839			
Z.3		0.820			
Z.4		0.799			
Z.5		0.774			
Z.6		0.658			
Z.7		0.659			
X1.1					0.399
X1.2					0.538
X1.3					0.773
X1.4					0.769
X1.5					0.767
X1.6					0.770

Source: SmartPLS Data Processing, 2026

Table 5. Convergent Validity Test Results: Outer Loading (Stage 2)

Indicator of Variable	Risk Management Function	Risk Management Function	Bank Performance	Operational Risk Management Supevision	Internal Auditor Role
X2.2	0.846				
X2.3	0.833				
X2.4	0.843				
X2.5	0.901				
X3.1				0.810	
X3.2				0.848	
X3.3				0.737	
X3.4				0.763	
Y.1			0.797		
Y.5			0.822		
Y.6			0.813		
Z.1		0.702			
Z.2		0.842			
Z.3		0.844			
Z.4		0.848			
Z.5		0.780			
X1.3					0.778
X1.4					0.782
X1.5					0.794
X1.6					0.804

Source: SmartPLS Data Processing, 2026

Based on the second-stage convergent validity assessment, all remaining indicators achieved outer loading values greater than 0.70. Therefore, the measurement model fulfilled the convergent validity requirements and was considered suitable for further analysis. Based on the Average Variance Extracted (AVE) results, all research variables obtained AVE values exceeding 0.50. Accordingly, all constructs satisfied the convergent validity criterion based on the AVE assessment.

Table 6. Convergent Validity Test Results: Average Variance Extracted (AVE)

Research Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Internal Auditor	0.800	0.804	0.869	0.624
Risk Management Function	0.801	0.812	0.869	0.626
Operational Management Supervision	0.879	0.890	0.916	0.733
Bank Performance	0.743	0.753	0.852	0.658
Information Technology Integration	0.864	0.873	0.902	0.649

Source: SmartPLS Data Processing, 2026

2. Discriminant Validity Test Result

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT).

Table 7. Discriminant Validity Test Results: Fornell–Larcker Criterion

Research Variable	X1	X2	X3	Y	Z
Internal Auditor	0.686	0.583	0.477	0.675	0.79
Risk Management Function	0.856	0.785	0.626	0.791	
Operational Management Supervision	0.719		0.811	0.791	
Bank Performance	0.490	0.805			
Information Technology Integration	0.635				

Source: SmartPLS Data Processing, 2026

Based on the Fornell–Larcker criterion, all constructs met the required discriminant validity standards. Therefore, the measurement model can be considered valid and appropriate for subsequent analysis. As shown in Table, all HTMT values among constructs were below the recommended threshold of 0.90. Thus, all constructs satisfied the discriminant validity requirement based on the HTMT method.

Table 8. Discriminant Validity Test Results: Heterotrait-Monotrait Ratio (HTMT)

Research Variable	X2	Z	Y	X3
Internal Auditor	0.811	0.690	0.594	0.830
Operational Management Supervision	0.847	0.903	0.781	
Bank Performance	0.583	0.838		
Information Technology Integration	0.725			

Source: SmartPLS Data Processing, 2026

3. Reliability Test

All research variables obtained composite reliability (rho_c) values exceeding the minimum acceptable threshold of 0.70. In addition, Cronbach's Alpha values for all constructs were above the recommended level. Therefore, all variables fulfilled the reliability requirements, indicating that the research instrument is consistent and reliable in measuring the constructs under investigation. The results of the measurement model evaluation indicate that

all constructs have satisfied the validity and reliability criteria. Consequently, the proposed model is considered adequate and can be further evaluated through structural model analysis.

Table 9. Reliability Test Results (Composite Reliability)

Research Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Internal Auditor	0.800	0.804	0.869	0.624
Risk Management Function	0.879	0.890	0.916	0.733
Operational Management Supervision	0.801	0.812	0.869	0.626
Bank Performance	0.743	0.753	0.852	0.658
Information Technology Integration	0.864	0.873	0.902	0.649

Source: SmartPLS Data Processing, 2026

Inner Model Analysis Result

1. R-Square Test Results

The R-Square results indicate that the independent variables, namely Internal Auditor Role, Risk Management Function, Operational Management Supervision**,** along with the moderating variable Information Technology Integration**,** explain 50.6% of the variance in Bank Performance. The remaining 49.4% is explained by other factors not included in this research model. Therefore, the model demonstrates a moderate explanatory power in predicting bank performance.

Table 10. R-Square Test Result

	R-square	R-square adjusted
Bank Performance	**0.556**	**0.506**

Source: SmartPLS Data Processing, 2026

2. F-Square Test Results

Based on the F-square (f^2) results, Operational Management Supervision exhibits the largest effect size on Bank Performance with an f^2 value of 0.059. In contrast, the Internal Auditor Role ($f^2 = 0.001$) and Risk Management Function ($f^2 = 0.004$) demonstrate very small effect sizes. Overall, all independent variables show relatively weak contributions to bank performance, although operational management supervision appears to be the most influential predictor among the variables examined.

Table 11. F-Square Test Results

Interaction of Variable	F-Square Value
Information Technology Integration × Internal Auditor Role → Bank Performance	0.001
Information Technology Integration × Risk Management Function → Bank Performance	0.004
Information Technology Integration × Operational Management Supervision → Bank Performance	0.059

Source: SmartPLS Data Processing, 2026

Hypothesis Testing Results (Path Coefficient Analysis)

Hypothesis testing was conducted using the path coefficient (Original Sample) and p-value criteria at a significance level of 5% ($p < 0.05$). The results are summarized as follows:

1. The path coefficient is −0.030 with a p-value of 0.409 (> 0.05). This indicates a negative but statistically insignificant relationship between the Internal Auditor Role and Bank Performance. Therefore, H1 is rejected.

2. The path coefficient is −0.068 with a p-value of 0.316 (> 0.05). This finding suggests that the Risk Management Function has a negative but insignificant effect on Bank Performance. Thus, H2 is rejected.
3. The path coefficient is 0.320 with a p-value of 0.043 (< 0.05). This result demonstrates that Operational Management Supervision has a positive and significant effect on Bank Performance. Accordingly, H3 is accepted.
4. The interaction coefficient is 0.023 with a p-value of 0.458 (> 0.05). This indicates that Information Technology Integration does not significantly moderate the relationship between the Internal Auditor Role and Bank Performance. Therefore, H4 is rejected.
5. The interaction coefficient is −0.207 with a p-value of 0.136 (> 0.05). This result indicates that Information Technology Integration does not significantly moderate the relationship between the Risk Management Function and Bank Performance. Thus, H5 is rejected.
6. The interaction coefficient is 0.312 with a p-value of 0.018 (< 0.05). This finding confirms that Information Technology Integration significantly strengthens the relationship between Operational Management Supervision and Bank Performance. Consequently, H6 is accepted.

Table 12. Path Coefficient Test Results

Interaction of Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Internal Auditor Role → Bank Performance	-0.030	-0.008	0.129	0.229	0.409
Risk Management Function → Bank Performance	-0.068	-0.077	0.143	0.479	0.316
Operational Management Supervision → Bank Performance	0.320	0.321	0.209	1.529	0.043
Information Technology Integration × Internal Auditor Role → Bank Performance	0.023	0.050	0.213	0.105	0.458
Information Technology Integration × Risk Management Function → Bank Performance	-0.207	-0.219	0.189	1.100	0.136
Information Technology Integration × Operational Management Supervision → Bank Performance	0.312	0.317	0.149	2.097	0.018

Source: SmartPLS Data Processing, 2026

Discussion

Effect of Internal Auditor Role on Bank Performance

The results indicate that the Internal Auditor Role has a negative and insignificant effect on Bank Performance. This finding suggests that the contribution of internal auditors has not yet translated into measurable improvements in bank performance. Internal auditors may still be perceived primarily as compliance and monitoring agents rather than strategic partners capable of creating organizational value (Johari, 2024). In addition, several respondents indicated that internal auditors occasionally face intervention in carrying out their duties, implying that auditor independence may not be fully maintained. Such conditions can reduce the objectivity of audit findings and recommendations, thereby limiting the effectiveness of internal audit functions in supporting organizational performance. From the perspective of Stewardship Theory, internal auditors should strengthen governance, accountability, and internal control systems (Kartika et al., 2024). However, the insignificant result indicates that these expected benefits have not been fully realized within the Regional Development Banks (BPDs) in Sumatra.

Effect of Risk Management Function on Bank Performance

The findings reveal that the Risk Management Function has a negative and insignificant effect on Bank Performance. Although risk management systems have been implemented, their benefits may not yet be directly reflected in organizational performance. this negative relationship indicates that although risk management systems have been implemented adequately, their benefits have not been directly reflected in improvements in organizational performance (M. Sari & Hanum, 2022). The findings of this study are consistent with those reported by Afni et al. (2025), Kristanti et al. (2023), Nur (2022), Nuraeni and Murdiana (2023), and M. Sari and Hanum (2022), who also found a negative relationship between risk management and bank performance. In several Regional Development Banks (BPDs), the risk management function often serves primarily as a formal supervisory mechanism, resulting in risk identification and mitigation processes that are not fully integrated into strategic business decision-making. According to Enterprise Risk Management (ERM) Theory, risk management should support the achievement of organizational objectives by integrating risk considerations into strategic planning and operational activities. The insignificant relationship found in this study suggests that such integration remains limited within the sampled banks.

Effect of Operational Management Supervision on Bank Performance

The results demonstrate that Operational Management Supervision has a positive and significant effect on Bank Performance. Effective operational supervision enables banking activities to be conducted in accordance with established procedures, reduces operational errors, improves employee discipline, and enhances service quality (Alhan et al., 2022; Martini, 2022; Mas'udi & Said, 2023). From the ERM perspective, strong operational supervision also facilitates the early detection of procedural deviations, operational weaknesses, and potential fraud, thereby reducing organizational risks. These findings indicate that operational supervision is one of the most influential internal mechanisms affecting bank performance, as it directly relates to the execution of core banking activities. Consequently, improving the quality and consistency of operational supervision can contribute substantially to the achievement of organizational objectives and overall bank performance.

Moderating Role of Information Technology Integration on the Relationship between Internal Auditor Role and Bank Performance

The findings indicate that Information Technology Integration does not significantly moderate the relationship between the Internal Auditor Role and Bank Performance. Although most respondents acknowledged the availability of digital audit systems, integrated information systems, and adequate IT infrastructure, the utilization of these technologies appears to remain suboptimal. These findings are consistent with the studies of Adi et al. (2025) and Bhakti (2024), which suggest that limitations in user competencies may hinder the effective utilization of available information systems. As a result, technology tends to function primarily as an administrative and documentation tool rather than as a strategic instrument capable of significantly enhancing audit quality and effectiveness. According to Contingency Theory, the effectiveness of a control system is not determined solely by the existence of technology itself, but also by the degree of alignment between technological capabilities, organizational structure, human resource competencies, organizational culture, and the demands of the business environment. Technology is often used primarily for administrative and reporting purposes rather than for advanced audit analytics and real-time monitoring. Consequently, the existence of information technology has not substantially enhanced the effectiveness of internal auditors in identifying risks, detecting irregularities, or improving organizational performance. Consistent with Contingency Theory, the effectiveness of technology depends not only on its

availability but also on its alignment with organizational needs, user competencies, and management practices.

Moderating Role of Information Technology Integration on the Relationship between Risk Management Function and Bank Performance

Information Technology Integration was also found to have no significant moderating effect on the relationship between the Risk Management Function and Bank Performance. Although integrated information systems facilitate risk identification, monitoring, and reporting, the information generated is not always fully utilized in strategic planning and managerial decision-making. The findings of this study are consistent with those of Rahmatika et al. (2024) and Shafitri et al. (2024), which suggest that the benefits of information systems have not been perceived equally by all users. Although information systems are capable of generating risk reports automatically, technology will not significantly improve bank performance if management does not fully utilize the information produced for strategic planning and decision-making purposes. According to Contingency Theory, the successful implementation of information technology in risk management depends on the alignment between technological capabilities, organizational structure, human resource competencies, and operational requirements. Therefore, despite the availability of relatively well-developed information technology systems, deficiencies in their implementation and utilization may explain why Information Technology Integration has not been able to strengthen the effect of the Risk Management Function on bank performance.

Moderating Role of Information Technology Integration on the Relationship between Operational Management Supervision and Bank Performance

The results show that Information Technology Integration significantly strengthens the relationship between Operational Management Supervision and Bank Performance. Integrated information systems enable real-time monitoring, automated reporting, faster information flows, and more effective coordination among organizational units. These capabilities allow management to conduct supervision more efficiently and respond more quickly to operational issues. Through interconnected information systems across organizational units, management can monitor operational activities in real time, generate automated reports, and perform performance evaluations more effectively (Saputri et al., 2024). The more advanced and integrated the technology employed, the easier it becomes for management to conduct monitoring, coordination, evaluation, and control of banking operations (Fahlevvi et al., 2025). These findings are consistent with the studies of Hera et al. (2024), Obiki-Osafiele et al. (2024), Rappe et al. (2024), and Shakeel et al. (2022). The findings support Contingency Theory, which argues that technology can enhance organizational effectiveness when it is aligned with operational requirements. The positive moderating effect observed in this study suggests that information technology has become an important enabler of operational control, helping banks improve efficiency, decision-making quality, and overall performance.

CONCLUSION

Based on the results of the data analysis using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach on 70 respondents from Regional Development Banks (BPDs) in the Sumatra region, this study concludes that the Internal Auditor Role and Risk Management Function do not have a significant effect on bank performance. These findings indicate that the implementation of internal audit and risk management practices has not yet translated into measurable improvements in organizational performance. In contrast, Operational Management Supervision was found to have a positive and significant effect on bank performance, suggesting that effective operational oversight plays an important role in

enhancing organizational effectiveness and achieving performance objectives. Furthermore, the moderating analysis revealed that Information Technology Integration does not significantly moderate the relationship between the Internal Auditor Role and bank performance, nor the relationship between the Risk Management Function and bank performance. However, Information Technology Integration was found to significantly strengthen the relationship between Operational Management Supervision and bank performance. This result indicates that integrated information technology can enhance the effectiveness of operational supervision through improved coordination, monitoring, and decision-making processes, ultimately contributing to better bank performance among Regional Development Banks in Sumatra.

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