

WHAT DRIVES FINANCIAL MANAGEMENT IN INDONESIAN STATE UNIVERSITIES WITH LEGAL ENTITY STATUS (PTN BH)? EVIDENCE FROM INTERNAL OVERSIGHT UNITS

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Abstract

This study examines the determinants of financial management performance in Indonesian State Universities with Legal Entity Status (PTN BH), focusing on internal control effectiveness, internal audit quality, auditor-auditee relationships, strategic planning, clarity of mission, and organizational ethical culture, with top management commitment as a moderating factor. Using a quantitative survey of Internal Audit Units (SPI) across all PTN BH, data were analyzed through PLS-SEM. Results show that audit quality, auditor-auditee relationships, strategic planning, mission clarity, and ethical culture significantly improve financial management performance, while internal control has no direct effect. Top management commitment strengthens the impact of audit quality, relationships, and ethical culture but is insignificant for other variables. Theoretically, the study integrates Institutional Theory, the COSO Framework, Goal Setting Theory, and Attribution Theory in public higher education governance. Practically, it highlights strengthening SPI, fostering ethical culture, implementing strategic planning, and ensuring management support to achieve accountability and sustainability in PTN BH financial management.

Keywords: Financial Management Performance, Internal Audit, Ethical Culture, Top Management Commitment, PTN BH

1 Introduction

State Universities with Legal Entity Status (PTN BH) in Indonesia, currently numbering 23 institutions, are designed as higher education entities with greater autonomy in academic, financial, and other resource management. The granting of this legal status is expected to strengthen the institutions' capacity to improve the quality of education, deepen research activities, expand cooperation, and accelerate the commercialization of innovation. This autonomy also allows for greater flexibility in financial management, including diversification of revenue sources through community funds, industry collaboration, and campus business units (Paino et al., 2015), (Nguyen & Dang, 2022), (Asif et al., 2022). However, this flexibility simultaneously increases management complexity, broadens the spectrum of risks, and demands transparent, accountable, efficient, and regulation-compliant financial management. In this context, financial management performance serves as the primary benchmark reflecting PTN BH's ability to optimize resource utilization while maintaining public credibility (Sîrb & Oana, 2015), (Suleiman & Dandago, 2014).

The Internal Audit Unit (SPI) plays a key role as the front line of supervision within PTN BH. This unit is responsible for ensuring that all financial processes comply with regulations, minimizing the risk of irregularities, and strengthening the reliability of financial reports and internal control systems (Jean et al., 2022), (Ahmi et al., 2014). Although the regulatory framework governing the SPI is uniform, in reality, the

capacity, role, and effectiveness of the SPI vary significantly among the 23 PTN BH institutions. This variation is reflected in the number of internal auditors, the level of professional certification, the implementation of risk-based audits, the quality of recommendations, and the effectiveness of follow-up actions (Mahzan & Meng, 2014), (Alina & Cerasela, 2014), (Rabea & Salmen, 2021), (Economics, 2013).

The phenomenon in the field shows a number of patterns that are relevant to the context of this study. In some PTN BHs, the budget absorption rate is often stuck below 40% in the first semester of the fiscal year, partly due to poor activity planning or repeated budget revisions (Mohamed & Handley-schachelor, 2014), (Heyrani et al., 2016). In terms of procurement of goods and services, SPI at several universities identified weaknesses in the planning of needs, setting of technical specifications, and the selection process for suppliers, leading to delays or contract cancellations. In asset management, there are significant discrepancies between accounting records and physical inventory results, including grants that have not been recorded in a timely manner (Soon-sinclair et al., 2023), (Dobre et al., 2015), (M. Wang & Luo, 2023). Control over travel expenses and multi-source funding activities also frequently faces challenges, such as inconsistencies in accountability evidence or double budgeting. This is supported by the following data:

Overall, the audit results on PTN BH financial management revealed **95** findings consisting of 169 issues, which include:



During the audit process, several PTN BH had followed up on BPK's recommendations by making deposits to the state/PTN BH treasury totaling Rp1.10 billion.

The recap of the audit results on PTN BH financial management is presented in Appendix D.2.

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This condition shows that a number of determinants play an important role in driving financial management performance at PTN BH. The effectiveness of internal control is the foundation for financial processes that are in line with risk control principles. The quality of internal audits determines the accuracy of findings and the relevance of recommendations. A collaborative relationship between internal auditors and auditees promotes information disclosure and acceptance of recommendations. Strategic planning and a clear strategic mission ensure that resources are allocated to institutional priorities. Meanwhile, institutional ethics and culture shape an environment of compliance and integrity that supports sound governance (Danescu et al., 2015), (Khoo et al., 2024).

However, the overall effectiveness of these determinants is greatly influenced by top management commitment as a moderating variable. Consistent leadership that upholds the principle of integrity, provides adequate resources for SPI, grants full access to data, and follows up on audit results decisively, can strengthen the influence of determinants on financial management performance (Alina & Cerasela, 2014), (Rabea & Salmen, 2021). Conversely, weak leadership commitment has the potential to weaken the effectiveness of internal control and audit, even when formal procedures are in place (Qi & Yuan, 2022).

To date, empirical studies that simultaneously examine the influence of Internal Control Effectiveness, Internal Audit Quality, Auditor-Auditee Relations, Strategic Planning, Strategic Mission, and Institutional Cultural Ethics on the financial management performance of PTN BH, while considering the moderating role of Top Management Commitment, remain very limited. Therefore, this study is designed to address this gap through a cross-sectional study of 23 PTN BH institutions in Indonesia. The findings are expected to contribute theoretically by integrating Institutional Theory, the COSO Internal Control Framework, and Goal Setting Theory within the context of higher education governance, while also providing practical recommendations to enhance the effectiveness of internal oversight, ethical culture, and strategic leadership at PTN BH institutions (Zager et al., 2016), (Petra & Tieau, 2014).

2 Research Method

This study examines the link between independent variables using a survey methodology and a quantitative technique, moderating variables, and dependent variables related to financial management performance at State Universities with Legal Entity Status (PTN BH) in Indonesia. The unit of analysis in this study is the Internal Audit Unit (SPI) at all PTN BH institutions, totaling 23 institutions as of 2024. The research population includes all internal auditors working in SPI at the 23 PTN BH, with a total of 300 internal auditors based on the latest data obtained from each university (Han et al., 2022), (Plant et al., 2022). Given that the population size is relatively limited and can be fully reached, the sampling technique used is the census method, which includes the entire population as research respondents. Data collection was conducted through the distribution of questionnaires both directly and online, using instruments that had been validated and tested for reliability during the pre-research phase. Out of the 300 questionnaires distributed, 276 were returned with data completeness meeting the analysis criteria, resulting in a response rate of 92%. The collected data were then processed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software, which was chosen for its ability to handle measurement and structural models simultaneously, accommodate data distributions that are not completely normal, and is suitable for analyzing models with latent variables measured through reflective indicators (Peji et al., 2018), (Lei et al., 2022). The analysis was conducted in two stages: evaluation of the measurement model (outer model) to test the validity and reliability of the constructs, and evaluation of the structural model (inner model) to test the research hypotheses, including testing the moderating effect of top management commitment on the relationship between the main determinants and financial management performance. The hypotheses of this study include:

1. The effectiveness of internal control (X1) has a positive effect on the financial management performance of PTNBH (Y).
2. The quality of internal audit (X2) has a positive effect on the financial management performance of PTNBH (Y).
3. The relationship between Internal Auditors and Auditees (X3) has a positive effect on the Financial Management Performance of PTNBH (Y).
4. Strategic Planning (X4) has a positive effect on the Financial Management Performance of PTNBH (Y).
5. Strategic Mission (X5) has a positive effect on the Financial Management Performance of PTNBH (Y).
6. Institutional Cultural Ethics (X6) has a positive effect on the Financial Management Performance of PTNBH (Y)

7. Top Management Commitment (Z) significantly moderates the relationship between Internal Control Effectiveness (X1) and Financial Management Performance of PTNBH (Y).
8. Top Management Commitment (Z) significantly moderates the relationship between Internal Audit Quality (X2) and Financial Management Performance of PTNBH (Y).
9. Top Management Commitment (Z) significantly moderates the relationship between Internal Auditors and Auditees (X3) and Financial Management Performance of PTNBH (Y).
10. Top Management Commitment (Z) significantly moderates the relationship between Strategic Planning (X4) and Financial Management Performance of PTNBH (Y).
11. Top Management Commitment (Z) significantly moderates the relationship between Strategic Mission (X5) and Financial Management Performance of PTNBH (Y).
12. Top Management Commitment (Z) significantly moderates Institutional Culture Ethics (X6) and Financial Management Performance of PTNBH (Y)

4 Result and Discussion

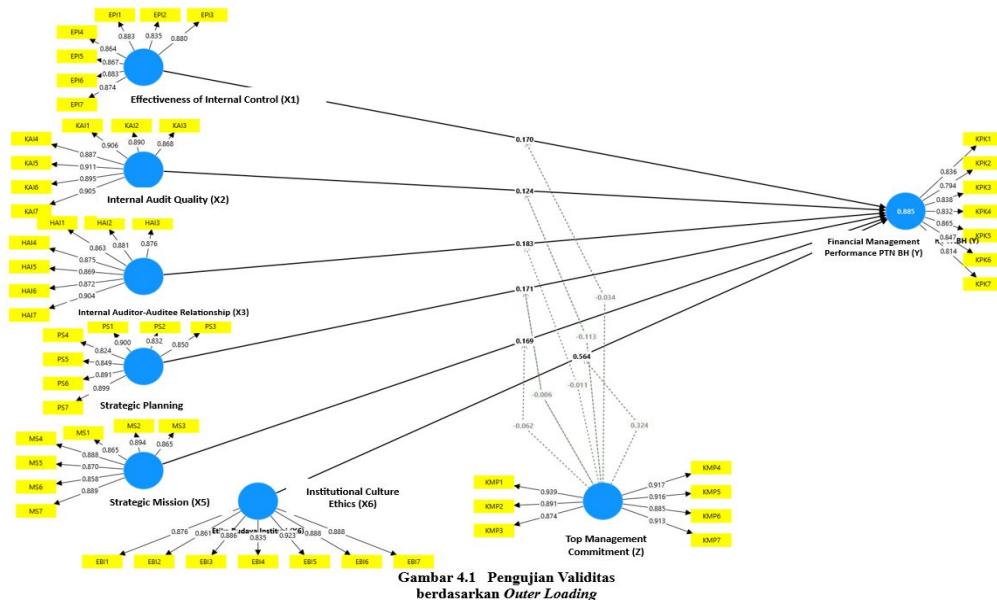
Convergent validity represents a part of the measurement model, referred to as confirmatory factor analysis (CFA) in covariance-based SEM, and as the outer model in SEM-PLS. To determine if the measurement model, or outer model, satisfies the convergent validity requirements for reflective constructs, two criteria are used: P-values must be significant (<0.05) and loadings must be greater than 0.7. However, especially for recently created questionnaires, the requirement of loadings exceeding 0.7 is occasionally not fulfilled. Thus, loadings in the range of 0.40 to 0.70 should still be taken into account for retention.

It is suggested that indicators with loadings below 0.40 be removed from the model. The impact of removing indicators with loadings between 0.40 and 0.70 should be assessed in relation to composite reliability and average variance extracted (AVE). If eliminating such indicators increases AVE and composite reliability beyond their threshold values, they may be excluded when their loadings fall within the 0.40 to 0.70 range. The threshold for composite reliability is 0.70, while for AVE it is 0.50. Another factor to consider when eliminating indicators is their effect on the construct's content validity. Indicators with relatively low loadings are sometimes maintained since they help preserve the content validity of the construct. Table 1 presents the loading values for each indicator.

Table 1. Validity Testing based on Outer Loading

	Effectiveness of Internal Control (X1)	Institutional Cultural Ethics (X6)	Relationship between Internal Auditors and Auditees (X3)	Financial Management Performance of PTNBH (Y)	Top Management Commitment (Z)	Internal Audit Quality (X2)	Strategic Mission (X5)	Strategic Planning (X4)
ICE1		0.876						
ICE2		0.861						
ICE3		0.886						
ICE4		0.835						
ICE5		0.923						
ICE6		0.888						
ICE7		0.888						
EIC1	0.883							
EIC2	0.835							
EIC3	0.880							
EIC4	0.864							
EIC5	0.867							
EIC6	0.883							
EIC7	0.874							
RIA1			0.863					
RIA2			0.881					
RIA3			0.876					
RIA4			0.875					
RIA5			0.869					
RIA6			0.872					
RIA7			0.904					
IAQ1						0.906		
IAQ2						0.890		
IAQ3						0.868		
IAQ4						0.887		
IAQ5						0.911		
IAQ6						0.895		
IAQ7						0.905		
TMC1					0.939			
TMC2					0.891			
TMC3					0.874			
TMC4					0.917			
TMC5					0.916			
TMC6					0.885			
TMC7					0.913			
FMP1				0.836				

	Effectiveness of Internal Control (X1)	Institutional Cultural Ethics (X6)	Relationship between Internal Auditors and Auditees (X3)	Financial Management Performance of PTNBH (Y)	Top Management Commitment (Z)	Internal Audit Quality (X2)	Strategic Mission (X5)	Strategic Planning (X4)
FMP2				0.794				
FMP3				0.838				
FMP4				0.832				
FMP5				0.865				
FMP6				0.847				
FMP7				0.814				
SM1						0.865		
SM2						0.894		
SM3						0.865		
SM4						0.888		
SM5						0.870		
SM6						0.858		
SM7						0.889		
SP1							0.900	
SP2							0.832	
SP3							0.850	
SP4							0.824	
SP5							0.849	
SP6							0.891	
SP7							0.899	



Gambar 4.1 Pengujian Validitas berdasarkan Outer Loading

Strategic Planning (X4)	0.747
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The suggested threshold for AVE is above 0.5. All AVE values are found to be > 0.5 , indicating that the validity criteria based on AVE are satisfied. Subsequently, reliability testing is conducted using the composite reliability (CR) value.

Table 3. Reliability Testing Based on Composite Reliability (CR)

	Composite reliability (rho_c)
Effectiveness of Internal Control (X1)	0.956
Ethics of Institutional Culture (X6)	0.960
Relationship between Internal Auditor and Auditee (X3)	0.959
Financial Management Performance of PTNBH (Y)	0.940
Top Management Commitment (Z)	0.970
Internal Audit Quality (X2)	0.966
Strategic Mission (X5)	0.958
Strategic Planning (X4)	0.954

The recommended threshold for CR is above 0.7. All CR values are found to be > 0.7 , indicating that the reliability criteria based on CR are fulfilled. Following this, reliability testing is performed using Cronbach's alpha (CA) values.

Table 4. Reliability Testing Based on Cronbach's Alpha (CA)

	Cronbach's alpha
Effectiveness of Internal Control (X1)	0.946
Ethics of Institutional Culture (X6)	0.951
Relationship between Internal Auditor and Auditee (X3)	0.950
Financial Management Performance of PTNBH (Y)	0.926
Top Management Commitment (Z)	0.965
Internal Audit Quality (X2)	0.958
Strategic Mission (X5)	0.949
Strategic Planning (X4)	0.943

The suggested threshold for CA is above 0.7. All CA values are reported to be > 0.7 , indicating that the reliability criteria based on Cronbach's alpha are satisfied. Subsequently, discriminant validity testing was carried out using the Fornell-Larcker approach.

Table 5. Table presents the results of the discriminant validity testing

	Effectiveness of Internal Control (X1)	Ethics of Institutional Culture (X6)	Relationship between Internal Auditor and Auditee (X3)	Financial Management Performance of PTNBH (Y)	Top Management Commitment (Z)	Internal Audit Quality (X2)	Strategic Mission (X5)	Strategic Planning (X4)
Effectiveness of Internal Control (X1)	0.870							
Ethics of Institutional Culture (X6)	0.429	0.880						
Relationship between Internal Auditor and Auditee (X3)	0.419	0.437	0.877					
Financial Management Performance of PTNBH (Y)	0.650	0.654	0.649	0.832				
Top Management Commitment (Z)	0.265	0.348	0.286	0.127	0.905			
Internal Audit Quality (X2)	0.450	0.451	0.455	0.661	0.309	0.895		
Strategic Mission (X5)	0.438	0.445	0.460	0.668	0.296	0.471	0.876	
Strategic Planning (X4)	0.415	0.416	0.408	0.628	0.249	0.440	0.435	0.864

In testing discriminant validity, the square root of the AVE for a latent variable is compared with its correlation values with other latent variables. The results show that

the square root AVE value for each latent variable is greater than the correlation values between that variable and the others. Thus, it can be concluded that the discriminant validity criterion has been fulfilled.

Table 6. Discriminant Validity Testing: HTMT

	Effectiveness of Internal Control (X1)	Ethics of Institutional Culture (X6)	Relationship between Internal Auditor and Auditee (X3)	Financial Management Performance of PTNBH (Y)	Top Management Commitment (Z)	Internal Audit Quality (X2)	Strategic Mission (X5)
Ethics of Institutional Culture (X6)	0.450						
Relationship between Internal Auditor and Auditee (X3)	0.441	0.457					
Financial Management Performance of PTNBH (Y)	0.692	0.695	0.688				
Top Management Commitment (Z)	0.254	0.345	0.274	0.110			
Internal Audit Quality (X2)	0.469	0.470	0.475	0.699	0.294		
Strategic Mission (X5)	0.459	0.466	0.483	0.711	0.281	0.492	
Strategic Planning (X4)	0.435	0.435	0.428	0.665	0.242	0.460	0.457

Based on the results of discriminant validity testing using the HTMT approach, all values were < 0.9 , indicating that the discriminant validity criteria under the HTMT approach have been satisfied.

Table 7. Path Coefficient Test & Significance of Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ($ O/STDEV $)	P values
Effectiveness of Internal Control (X1) → Financial Management	0.170	0.185	0.069	2.458	0.007

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Performance of PTNBH (Y)					
Ethics of Institutional Culture (X6) → Financial Management Performance of PTNBH (Y)	0.564	0.496	0.114	4.925	0.000
Relationship between Internal Auditor and Auditee (X3) → Financial Management Performance of PTNBH (Y)	0.183	0.212	0.091	2.013	0.022
Internal Audit Quality (X2) → Financial Management Performance of PTNBH (Y)	0.124	0.121	0.048	2.582	0.005
Strategic Mission (X5) → Financial Management Performance of PTNBH (Y)	0.169	0.177	0.062	2.719	0.003
Strategic Planning (X4) → Financial Management Performance of PTNBH (Y)	0.171	0.183	0.068	2.507	0.006
Top Management Commitment (Z) × Strategic Planning (X4) → Financial Management Performance of PTNBH (Y)	-0.006	-0.002	0.076	2.182	0.037
Top Management Commitment (Z) × Relationship between Internal Auditor and Auditee (X3) → Financial Management Performance of PTNBH (Y)	-0.011	0.015	0.100	0.110	0.456
Top Management Commitment (Z) × Internal Audit Quality (X2) → Financial Management Performance of PTNBH (Y)	-0.113	-0.125	0.058	1.957	0.025

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Top Management Commitment (Z) × Ethics of Institutional Culture (X6) → Financial Management Performance of PTNBH (Y)	0.324	0.270	0.117	2.776	0.003
Top Management Commitment (Z) × Effectiveness of Internal Control (X1) → Financial Management Performance of PTNBH (Y)	-0.034	-0.024	0.082	2.412	0.040
Top Management Commitment (Z) × Strategic Mission (X5) → Financial Management Performance of PTNBH (Y)	-0.062	-0.064	0.072	0.865	0.193

Based on the results in Table 7, the following results were obtained:

1. The effectiveness of internal control (X1) has a positive effect on the financial management performance of PTNBH (Y)
2. The quality of internal audit (X2) has a positive effect on the financial management performance of PTNBH (Y), with a coefficient value (Original Sample column) = 0.124, and is significant, with T -Statistics = 2.582 > 1.647 and P-Values = 0.005 < 0.05 (Hypothesis Accepted).
3. The relationship between Internal Auditors and Auditees (X3) has a positive effect on the Financial Management Performance of PTNBH (Y), with a coefficient value (Original Sample column) = 0.183, and is significant, with T -Statistics = 2.013 > 1.647 and P-Values = 0.022 < 0.05 (Hypothesis Accepted).
4. Strategic Planning (X4) has a positive effect on the Financial Management Performance of PTNBH (Y), with a coefficient value (Original Sample column) = 0.171, and is significant, with T -Statistics = 2.507 > 1.647 and P-Values = 0.006 < 0.05 (Hypothesis Accepted).
5. Strategic Mission (X5) has a positive effect on the Financial Management Performance of PTNBH (Y), with a coefficient value (Original Sample column) = 0.169, and is significant, with T-Statistics = 2.719 > 1.647 and P-Values = 0.003 < 0.05 (Hypothesis Accepted).
6. Institutional Cultural Ethics (X6) has a positive effect on the Financial Management Performance of PTNBH (Y), with a coefficient value (Original Sample column) = 0.564, and is significant, with T -Statistics = 4.925 > 1.647 and P-Values = 0.000 < 0.05 (Hypothesis Accepted).
7. Top Management Commitment (Z) does not significantly moderate Internal Control Effectiveness (X1) -> Financial Management Performance of PTNBH

- (Y), with T-Statistics = $0.412 < 1.647$ and P-Values = $0.340 > 0.05$ (Moderation Hypothesis Rejected).
8. Top Management Commitment (Z) significantly moderates the relationship between Internal Audit Quality (X2) and Financial Management Performance of PTNBH (Y), with T-Statistics = $1.957 > 1.647$ and P-Values = $0.025 < 0.05$ (Moderation Hypothesis Accepted).
 9. Top Management Commitment (Z) does not significantly moderate the Relationship between Internal Auditors and Auditees (X3) -> Financial Management Performance of PTNBH (Y), with T-Statistics = $0.110 < 1.647$ and P-Values = $0.456 > 0.05$ (Moderation Hypothesis Rejected).
 10. Top Management Commitment (Z) does not significantly moderate Strategic Planning (X4) -> Financial Management Performance of PTNBH (Y), with T-Statistics = $0.082 < 1.647$ and P-Values = $0.467 > 0.05$ (Moderation Hypothesis Rejected).
 11. Top Management Commitment (Z) does not significantly moderate Strategic Mission (X5) -> Financial Management Performance of PTNBH (Y), with T-Statistics = $0.865 < 1.647$ and P-Values = $0.193 > 0.05$ (Moderation Hypothesis Rejected).
 12. Top Management Commitment (Z) significantly moderates Institutional Culture Ethics (X6) -> PTNBH Financial Management Performance (Y), with T-Statistics = $2.776 > 1.647$ and P-Values = $0.003 < 0.05$ (Moderation Hypothesis Accepted).

Table 8. R-Square

	R-square
Financial Management Performance of PTNBH (Y)	0.885

It is known that the R-Square value of PTNBH Financial Management Performance (Y) is 0.885, which means that Internal Control Effectiveness (X1), Internal Audit Quality (X2), Relationship Between Internal Auditors and Auditees (X3), Strategic Planning (X4), Strategic Mission (X5), and Institutional Cultural Ethics (X6) can explain or influence the Financial Management Performance of PTNBH (Y) by 85.5%, while the remaining 14.5% is influenced by other factors.

Table 9. Q-Square

	$Q^2 (=1-SSE/SSO)$
Financial Management Performance of PTNBH (Y)	0.600

It is known that the Q-Square (Q^2) value of PTNBH Financial Management Performance (Y) is $0.600 > 0$, which means that Internal Control Effectiveness (X1), Internal Audit Quality (X2), Relationship between Internal Auditors and Auditees (X3), Strategic Planning (X4), Strategic Mission (X5), Institutional Cultural Ethics (X6) together or simultaneously have predictive relevance to the Financial Management Performance of PTNBH (Y).

Table 10. Testing the Goodness of Fit Model

	Estimated model
SRMR	0.047

Based on the results of the SRMR goodness of fit test, the SRMR value = 0.047 < 0.1, it can be concluded that the model is FIT.

Based on the results of the analysis in Table 4.7, this study demonstrates that all independent variables have a positive and significant impact on the financial management performance of PTN BH, although the moderating effect of top management commitment is significant only in certain relationships. The first finding shows that the effectiveness of internal control (X1) is an important factor in improving financial management performance, as indicated by a positive coefficient of 0.170 and a significance level of $p < 0.05$. This finding is consistent with the view of the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which highlights that an effective internal control system helps reduce the risk of errors and fraud, thereby improving the reliability of financial reporting and strengthening the accountability of public fund management (Rakipi et al., 2021), (Tellechea, 2023). Furthermore, the institutional cultural ethics variable (X6) shows the most dominant influence with a coefficient of 0.564, indicating that the values of integrity, transparency, and professionalism embedded in the organizational culture contribute significantly to improving the quality of financial management. This reinforces the Institutional Theory perspective, where established norms and values within the organizational environment are key factors in shaping behaviors and work practices that support good governance (Huang et al., 2022), (Narcisa et al., 2015).

The relationship between internal auditors and auditees (X3) was also found to have a positive effect on financial management performance, with a coefficient of 0.183 and adequate significance (Dabari & Saidin, 2014). This finding reflects that constructive communication, mutually respectful working relationships, and effective coordination between internal auditors and auditees can improve the implementation of audit recommendations, improve business processes, and ultimately strengthen financial governance (Jenke et al., 2022). The internal audit quality variable (X2) has a positive coefficient of 0.124, indicating that auditor competence, audit procedure accuracy, and audit result objectivity are important drivers of financial management success at PTN BH. In line with this, strategic mission (X5) and strategic planning (X4) each contribute positively with coefficients of 0.169 and 0.171, confirming that clarity of organizational objectives and thorough planning can ensure proper resource allocation and the achievement of optimal financial targets (Vitorino et al., 2022).

In terms of moderating effects, the results of the study reveal that top management commitment (Z) does not consistently strengthen the relationship between independent variables and financial management performance. Significant moderating effects were only observed in the relationship between internal audit quality (X2) and financial management performance, and between institutional cultural ethics (X6) and financial management performance, with T-statistics values of 1.957 and 2.776, respectively ($p < 0.05$). This indicates that active support, visionary leadership, and direct involvement of top management can maximize the impact of audit quality and the strengthening of institutional cultural values on financial management. Conversely, in other relationships, including internal control effectiveness, auditor-auditee relationships, strategic mission, and strategic planning, the moderating effect of top management commitment is not significant, which may be due to the intrinsic strength of these variables or because top management involvement does not provide substantial added value (Abdul et al., 2014) (Wu et al., 2022) (Daubner et al., 2023).

Overall, the findings of this study offer both theoretical and practical contributions. From a theoretical standpoint, the results broaden the application of Institutional Theory and the COSO Framework within the context of financial management at PTN BH in

Indonesia, while also reaffirming the relevance of Goal Setting Theory in explaining the role of mission and strategic planning in enhancing financial performance. From a practical perspective, the implications are that strengthening internal controls, developing an ethical culture, improving the quality of internal audits, and establishing clear missions and strategic planning should be policy priorities. On the other hand, while top management commitment is proven to be important in some aspects, organizations need to identify factors that can enhance the effectiveness of their role as moderating variables to optimize all dimensions of financial management (Laurentiu et al., 2014), (Arena, 2013), (Saidin, 2014).

In addition to these key findings, the results of this study also reveal a pattern of relationships indicating that the effectiveness of PTN BH financial management performance does not only depend on the strength of each independent variable separately, but also on the dynamic interaction between these variables within the framework of holistic organizational governance. For example, although internal control (X1) is proven to be significant, its effectiveness will increase if accompanied by a strong institutional ethical culture (X6). This is in line with the complementarity theory, which states that the success of a governance mechanism is influenced by the extent to which other mechanisms support and complement its functions. In the context of PTN BH, internal control that operates with proper procedures will be more effective if the work environment promotes integrity, transparency, and compliance with rules. Thus, an integrative approach between control policies and organizational culture development can create a stronger synergy effect on financial management performance (Botez, 2012), (Putu et al., 2023), (Qu, 2014).

Furthermore, the positive role of auditor-auditee relationships (X3) shows that the social and communication dimensions of the audit process have strategic value that often cannot be directly quantified. The social exchange theory perspective explains that a relationship of mutual trust between auditors and auditees will increase information disclosure, minimize resistance to audit findings, and accelerate the process of implementing recommendations for improvement. In the context of PTN BH, this is highly relevant because bureaucratic complexity often poses a barrier to audit effectiveness. With constructive working relationships, such barriers can be reduced, enabling audit recommendations to be implemented quickly and accurately, thereby strengthening the quality of financial management (Kasper & Alm, 2022), (Vuko et al., 2022), (Han et al., 2023).

Specifically for strategic mission (X5) and strategic planning (X4), their positive contributions indicate that long-term orientation and organizational direction clarity are important prerequisites for achieving financial performance targets. However, the inconsistent moderating effects of top management commitment on these two variables suggest that good strategic planning and mission statements do not always require additional support from top management to be effective. This is likely because strategic planning and mission statements have become institutionalized processes within PTN BH, where mechanisms and policy directions are deeply embedded in operational systems, ensuring relative stability despite varying levels of direct management involvement (Wittayapoom, 2014), (Zhu et al., 2021), (Khalil, 2022).

Findings related to the inconsistent moderating effect of top management commitment also provide an opportunity for organizational diagnosis. In this case, top management needs to evaluate the form of support provided—whether it is symbolic or truly operational—because symbolic support often does not have a significant impact on performance. Additionally, differences in the level of moderation significance may indicate that top management is more responsive to issues directly related to audit

quality and organizational culture, but pays less attention to aspects of internal control or strategic planning. This highlights the need to expand the scope of top management's role so that it does not focus solely on specific dimensions but provides comprehensive support across all aspects of financial management.

From a policy implementation perspective, a combination of strong internal controls, an established ethical culture, high-quality internal audits, and harmonious auditor-auditee relationships can form a sustainable institutional capability for PTN BH. These four factors, when integrated into the COSO Framework and reinforced by the norms and values emphasized in Institutional Theory, can create a financial governance ecosystem that is more resilient to external and internal pressures. Therefore, strategies to strengthen financial management performance are not sufficient if they only improve one dimension; rather, they require simultaneous and complementary interventions across various institutional aspects (Y. Wang & Li, 2011), (Mohd-sanusi et al., 2015).

The findings of this study can be analyzed more comprehensively through a multi-level theoretical approach, starting from the grand theory framework, namely Institutional Theory, which explains that the sustainability of an organization is greatly influenced by its ability to adapt to institutional pressures in the form of regulations (coercive isomorphism), professional demands (normative isomorphism), and imitation of best practices (mimetic isomorphism). In the context of PTN BH, the variables of internal control (X1), ethical culture (X6), and strategic planning (X4) reflect the institution's efforts to meet the normative and regulatory expectations of the Ministry, the Audit Board, and the public. When PTN BH builds an effective internal control system and fosters an ethical culture, it not only fulfills regulatory obligations but also strengthens organizational legitimacy, which in turn enhances stakeholders' trust in financial management performance (Nordin, 2022), (Boghean, 2015).

From a middle theory perspective, the COSO Internal Control Integrated Framework provides a systematic explanation of how its five components—control environment, risk assessment, control activities, information and communication, and monitoring activities—can interact to create an effective internal control system. The results of the study indicate that the quality of internal audit (X2) and the auditor-auditee relationship (X3) are factors that strengthen the monitoring activities and information & communication components. A positive working relationship between auditors and auditees facilitates the exchange of information, improves the accuracy of reports, and accelerates the implementation of audit recommendations. Meanwhile, ethical culture (X6) is closely related to the control environment, where values of integrity and ethics form the foundation of organizational behavior. Thus, consistent application of the COSO Framework will create a synergistic governance environment that supports improved financial management performance (Kiewit et al., 2018), (Yang et al., 2018), (Kai et al., 2022).

At the applied theory level, Goal Setting Theory explains that the clarity of strategic mission (X5) and the quality of strategic planning (X4) play an important role in shaping the direction of organizational goal achievement. Research results showing the significant influence of these two variables indicate that PTN BHs that have clear, measurable, and well-socialized goals will be able to mobilize resources effectively to achieve financial performance targets. Additionally, Attribution Theory offers an additional perspective that individual and group behavior within an organization is influenced by internal attributions (e.g., commitment, competence) and external attributions (e.g., system support, policies). In this study, top management commitment as a moderating variable can be seen as an internal attribution factor that strengthens the relationship between internal audit quality, ethical culture, and financial management

performance. When top management provides tangible support in the form of policies, budgets, or behavioral examples, the influence of these variables on performance becomes stronger. However, the inconsistent moderating effects on other variables suggest that top management support may be selective or uneven across all dimensions, thereby presenting opportunities for improvement in governance policies (Chang et al., 2019), (Achua & Alabar, 2014).

By integrating these three levels of theory, it can be concluded that improving the financial management performance of PTN BH requires an approach that not only focuses on technical procedures but also considers institutional legitimacy, synergy between internal control components, clarity of strategic objectives, and consistent management support. This finding underscores that financial governance reforms at PTN BH must be implemented holistically, combining structural, cultural, and behavioral changes to achieve optimal sustainability and accountability (Mohd et al., 2022),(Hanskamp-sebregts et al., 2020).

The results of this study can also be analyzed from the perspective that financial management at PTN BH is not only a technical procedural issue, but also a complex managerial process influenced by organizational dynamics, regulations, and interactions between actors within the organization. In the context of the autonomy enjoyed by PTN BH, each university faces unique challenges in balancing the freedom to manage financial resources with the obligation to maintain public accountability. Therefore, factors such as the effectiveness of internal controls, the quality of internal audits, auditor-auditee relationships, strategic planning, clarity of strategic mission, as well as organizational ethics and culture must be viewed as complementary components in forming a robust governance system.

In this context, the effectiveness of internal control can be understood not only as a mechanism to prevent fraud or errors, but also as an instrument to enhance coordination among work units and to ensure consistency between budget planning and expenditure realization. This approach is in line with Institutional Theory, in which a well-established internal control system reflects the adaptation of institutions to normative demands that emphasize accountability. In practice, PTN BH, which routinely conducts risk assessments and control activities in accordance with COSO standards, is able to anticipate changes in the external environment, such as fluctuations in government budgets, by making quick and measured policy adjustments (Silva et al., 2023), (Barrainkua & Espinosa-pike, 2018).

The quality of internal audits in this framework serves as a vital feedback mechanism. Internal auditors who understand the academic and business context of the university will be able to provide relevant and easily implemented recommendations. In addition, the relationship between auditors and auditees built on the principle of openness will accelerate the process of improving system weaknesses (Cataldo et al., 2023). Field observations indicate that public universities with a dialogic audit communication style are more successful in addressing audit findings in a timely manner compared to those that adopt a rigid and formalistic communication style (An, 2022). This finding also aligns with Attribution Theory, where the acceptance of recommendations is significantly influenced by perceptions of the intent and credibility of the recommenders.

Strategic planning and clarity of strategic mission play a role in creating a consistent financial management roadmap from year to year. According to Goal Setting Theory, specific and measurable goals will motivate work units to strive harder to achieve them. In the case of PTN BH, the integration between the university's strategic plan and its annual financial work plan is a key factor distinguishing institutions that can maintain

sustainable financial performance from those that only focus on meeting short-term targets (Krane & Eulerich, 2020).

Ethics and institutional culture in the context of PTN BH often serve as distinguishing factors between reactive and proactive governance. Organizations that instill values of integrity, accountability, and social responsibility into their work culture will be better prepared to handle external pressures, such as external audits or public demands for transparency. In other words, a strong organizational culture will serve as a soft control that complements hard controls within the internal control system (Tatiana & Ioana, 2014).

The role of top management commitment as a moderator in this study can be explained through the concept of tone at the top. Leaders who consistently demonstrate commitment to good governance principles will spread these ethical standards throughout all levels of the organization. In the context of COSO, this not only strengthens the control environment but also creates a work climate conducive to the implementation of transparent and effective financial policies. At PTN BH, which has leaders with a participatory leadership style, the financial management unit and SPI tend to be more motivated to perform their oversight and control functions optimally (Othman et al., 2015), (Rubasundram, 2015).

Overall, these findings indicate that improving the financial management performance of PTN BH requires an integrative approach, in which each factor reinforces the others within a single governance ecosystem (Munteanu & Laurentiu, 2014), (Al-okaily & Benyoussef, 2020). An approach that combines effective internal controls, high-quality internal audits, collaborative working relationships, clear strategic planning, an integrity-driven organizational culture, and strong leadership commitment will result in financial performance that is not only strong in terms of numbers but also sustainable and enjoys high public legitimacy.

5 Conclusions

Based on the empirical analysis conducted on 23 State Universities with Legal Entity Status (PTN BH) in Indonesia, involving 276 internal auditors as respondents, it can be concluded that financial management performance is significantly affected by the effectiveness of internal control, the quality of internal audit, the relationship between internal auditors and auditees, the clarity of strategic mission, strategic planning, as well as institutional ethics and culture. Among all these variables, institutional ethics and culture have proven to be the most dominant determinant, indicating that values such as integrity, transparency, accountability, and professionalism, which are internalized within the organizational culture, form the primary foundation for strengthening financial governance at PTN BH. This finding aligns with Institutional Theory, which emphasizes the importance of institutional legitimacy through the application of widely recognized norms and values, and is consistent with the COSO Internal Control Framework, which positions the control environment and ethical culture as prerequisites for the effectiveness of resource management.

Furthermore, the moderation analysis indicates that top management commitment significantly reinforces the impact of internal audit quality and institutional ethical culture on financial management performance. This indicates that active involvement, policy support, and visionary leadership from top management serve as important catalysts capable of optimizing the role of internal audit and strengthening ethical culture within PTN BH. However, the moderating effect is not significant on the relationships between other variables, implying the need for strategies to strengthen the role of top

management so that their support can have a more equitable impact on all determinants of financial management performance.

Overall, this study's results contribute both theoretically and practically. From a theoretical perspective, the findings enhance the body of literature on public sector financial management by incorporating Institutional Theory, the COSO Framework, Goal Setting Theory, and Attribution Theory within the context of higher education institutions with legal entity status. Practically, the implications point to the need for strategic policies focused on strengthening internal control systems, improving the quality of internal audits, formulating and implementing clear missions and strategic plans, and building an organizational culture rooted in ethics. With full support from top management, these steps are expected to achieve accountable, transparent, effective, and sustainable financial management performance at PTN BH.

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References

- Abdul, R., Syahira, I., & Anwar, K. (2014). Effectiveness of fraud prevention and detection techniques in Malaysian Islamic banks. *Procedia - Social and Behavioral Sciences*, 145, 97–102. <https://doi.org/10.1016/j.sbspro.2014.06.015>
- Achua, J. K., & Alabar, T. T. (2014). Imperatives of marketing internal auditing in Nigerian universities. *Procedia - Social and Behavioral Sciences*, 164(August), 32–40. <https://doi.org/10.1016/j.sbspro.2014.11.047>
- Ahmi, A., Saidin, S. Z., & Abdullah, A. (2014). IT adoption by internal auditors in public sector : A conceptual study. *Procedia - Social and Behavioral Sciences*, 164(August), 591–599. <https://doi.org/10.1016/j.sbspro.2014.11.151>
- Alina, M., & Cerasela, E. (2014). Contemporary Approaches in Internal Audit. *Procedia Economics and Finance*, 15(14), 530–537. [https://doi.org/10.1016/S2212-5671\(14\)00503-6](https://doi.org/10.1016/S2212-5671(14)00503-6)
- Al-Okaily, J., & Benyoussef, N. (2020). Journal of International Accounting , Auditing and Taxation Audit committee effectiveness and non-audit service fees : Evidence from UK family firms. *Journal of International Accounting, Auditing and Taxation*, 41, 100356. <https://doi.org/10.1016/j.intaccaudtax.2020.100356>
- An, D. H. (2022). International Journal of Educational Development Performance of universities in Vietnam. *International Journal of Educational Development*, 91(July 2021), 102588. <https://doi.org/10.1016/j.ijedudev.2022.102588>
- Arena, M. (2013). Internal audit in Italian universities : An empirical study. *Procedia - Social and Behavioral Sciences*, 93, 2000–2005. <https://doi.org/10.1016/j.sbspro.2013.10.155>
- Asif, M., Searcy, C., & Castka, P. (2022). Exploring the role of industry 4 . 0 in enhancing supplier audit authenticity , efficacy , and cost effectiveness. *Journal of*

- Cleaner Production, 331(November 2021), 129939.
<https://doi.org/10.1016/j.jclepro.2021.129939>
- Barrainkua, I., & Espinosa-pike, M. (2018). The influence of auditors' professionalism on ethical judgement : Differences among practitioners and postgraduate students. *Cómo Citar Este Artículo:*, 21(2), 176–187.
<https://doi.org/10.1016/j.resar.2017.07.001>
- Boghean, F. (2015). Risk management in the decision-making of Romanian entities. *Procedia Economics and Finance*, 32(15), 1066–1074.
[https://doi.org/10.1016/S2212-5671\(15\)01569-5](https://doi.org/10.1016/S2212-5671(15)01569-5)
- Botez, D. (2012). Internal Audit and Management Entity. *Procedia - Social and Behavioral Sciences*, 3(12), 1156–1160. [https://doi.org/10.1016/S2212-5671\(12\)00289-4](https://doi.org/10.1016/S2212-5671(12)00289-4)
- Cataldo, A., Bravo-adasme, N., Araya, P., & Orme, V. (2023). *Telematics and Informatics Why university students are technostressed with remote classes : Study-Family conflict , satisfaction with university life , and academic performance ~ o. 80(April)*. <https://doi.org/10.1016/j.tele.2023.101982>
- Chang, Y., Chen, H., Cheng, R. K., & Chi, W. (2019). Journal of Contemporary Accounting & Economics The impact of internal audit attributes on the effectiveness of internal control over operations and compliance ☆. *Journal of Contemporary Accounting & Economics*, 15(1), 1–19.
<https://doi.org/10.1016/j.jcae.2018.11.002>
- Dabari, I. J., & Saidin, S. Z. (2014). A theoretical framework on the level of risk management implementation in the Nigerian banking sector : The moderating effect of top management support. *Procedia - Social and Behavioral Sciences*, 164(August), 627–634. <https://doi.org/10.1016/j.sbspro.2014.11.156>
- Danescu, T., Prozan, M., & Diana, R. (2015). *The valances of the internal audit in relationship with the internal control – corporate governance*. 26(15), 960–966.
[https://doi.org/10.1016/S2212-5671\(15\)00915-6](https://doi.org/10.1016/S2212-5671(15)00915-6)
- Daubner, L., Macak, M., Matulevičius, R., Buhnova, B., Maksović, S., & Pitner, T. (2023). Journal of Information Security and Applications Addressing insider attacks via forensic-ready risk management. *Journal of Information Security and Applications*, 73(January), 103433. <https://doi.org/10.1016/j.jisa.2023.103433>
- Dobre, E., Petrascu, D., & Botina, M. (2015). Risks Management Profile in Local Public Services Administration. *Procedia Economics and Finance*, 27(15), 204–208. [https://doi.org/10.1016/S2212-5671\(15\)00991-0](https://doi.org/10.1016/S2212-5671(15)00991-0)
- Economics, P. (2013). *International Economic Conference of Sibiu 2013 Post Crisis Economy: Challenges and Opportunities, IECS 2013*. 6(13), 694–702.
[https://doi.org/10.1016/S2212-5671\(13\)00191-3](https://doi.org/10.1016/S2212-5671(13)00191-3)
- Fitri, N., Noor, M., Mohd, Z., Teck, L., & Mohd, T. (2015). Fraud Motives and Opportunities Factors on Earnings Manipulations. *Procedia Economics and Finance*, 28(April), 126–135. [https://doi.org/10.1016/S2212-5671\(15\)01091-6](https://doi.org/10.1016/S2212-5671(15)01091-6)
- Han, H., Fei, S., Yan, Z., & Zhou, X. (2022). A survey on blockchain-based integrity auditing for cloud data. *Digital Communications and Networks*, 8(5), 591–603.
<https://doi.org/10.1016/j.dcan.2022.04.036>
- Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). International Journal of Accounting Accounting and auditing with blockchain technology and artificial Intelligence : A literature review. *International Journal of Accounting Information Systems*, 48(March 2021), 100598.
<https://doi.org/10.1016/j.accinf.2022.100598>

- Hanskamp-sebregts, M., Robben, P. B., Wollersheim, H., & Zegers, M. (2020). Transparency about internal audit results to reduce the supervisory burden : A qualitative study on the preconditions of sharing audit results. *Health Policy*, 124(2), 216–223. <https://doi.org/10.1016/j.healthpol.2019.11.013>
- Heyrani, F., Banimahd, B., & Rahnamayeh, F. (2016). Investigation of the Effect of Auditors' Professionalism Levels on Their Judgment to Resolve the Conflict between Auditor and Management. *Procedia Economics and Finance*, 36(16), 177–188. [https://doi.org/10.1016/S2212-5671\(16\)30029-6](https://doi.org/10.1016/S2212-5671(16)30029-6)
- Huang, F., Gyun, W., Vasarhelyi, M. A., & Yan, Z. (2022). ScienceDirect Audit data analytics , machine learning , and full population testing. *The Journal of Finance and Data Science*, 8, 138–144. <https://doi.org/10.1016/j.jfds.2022.05.002>
- Jean, E., Wei, Z., Mangat, R., Durai, P., Biligere, S., Tan, Y., Hin, L., Marcus, Y., Andrea, N., Li, S., Tiong, C., Ferreti, S., & Gauhar, V. (2022). ScienceDirect Outcomes of a non-randomised audit of single pigtail suture stents in urolithiasis management of Asian patients in Singapore. *Asian Journal of Urology*, October, 1–7. <https://doi.org/10.1016/j.ajur.2022.03.013>
- Jenke, T., Boylan, J. L., Beatty, S., Ralph, M., Chaplyn, A., Penney, G., & Cattani, M. (2022). Fatality risk management : Applying Quinlan's Ten Pathways in Western Australia 's mining industry. *Safety Science*, 146(September 2021), 105494. <https://doi.org/10.1016/j.ssci.2021.105494>
- Kai, R., Yusheng, K., Ntarmah, A. H., & Ti, C. (2022). Heliyon Constructing internal audit quality evaluation index: evidence from listed companies in Jiangsu province , China. *Heliyon*, 8(July), e10598. <https://doi.org/10.1016/j.heliyon.2022.e10598>
- Kasper, M., & Alm, J. (2022). Journal of Economic Behavior and Organization Audits , audit effectiveness , and post-audit tax compliance ☆. *Journal of Economic Behavior and Organization*, 195(December 2021), 87–102. <https://doi.org/10.1016/j.jebo.2022.01.003>
- Khalil, U. F. (2022). Asia Pacific Management Review Auditor choice and its impact on financial reporting quality : A case of banking industry of Pakistan. *Asia Pacific Management Review*, 27(4), 292–302. <https://doi.org/10.1016/j.apmrv.2021.12.001>
- Khoo, S., Perotti, P., Verousis, T., & Watermeyer, R. (2024). Vice-chancellor narcissism and university performance. *Research Policy*, 53(1), 104901. <https://doi.org/10.1016/j.respol.2023.104901>
- Kiewit, P., Wang, J., Cheng, Z., Wang, J., & Cheng, Z. (2018). ScienceDirect FP-Growth based Regular Behaviors Auditing in Electric FP-Growth based Regular Behaviors Auditing in Electric Management Information System Management Information System. *Procedia Computer Science*, 139, 275–279. <https://doi.org/10.1016/j.procs.2018.10.268>
- Krane, R., & Eulerich, M. (2020). Journal of International Accounting , Auditing and Taxation Going global : Factors influencing the internationalization of the internal audit function. *Journal of International Accounting, Auditing and Taxation*, 41, 100353. <https://doi.org/10.1016/j.intaccaudtax.2020.100353>
- Laurentiu, D., Lazar, A., & Maria, D. (2014). The Role of Internal Audit regarding the Corporate Governance and the Current Crisis. *Procedia - Social and Behavioral Sciences*, 116, 4819–4823. <https://doi.org/10.1016/j.sbspro.2014.01.1031>
- Lei, M., Liu, S., Luo, N., Yang, X., & Sun, C. (2022). Heliyon Trusted-auditing chain : A security blockchain prototype used in agriculture traceability. *Heliyon*, 8(November), e11477. <https://doi.org/10.1016/j.heliyon.2022.e11477>

- Mahzan, N., & Meng, C. (2014). Harnessing the benefits of Corporate Governance and Internal Audit : Advice to SME. *Procedia - Social and Behavioral Sciences*, 115(Icies 2013), 156–165. <https://doi.org/10.1016/j.sbspro.2014.02.424>
- Mohamed, N., & Handley-schachelor, M. (2014). Financial statement fraud risk mechanisms and strategies : the case studies of Malaysian commercial companies. *Procedia - Social and Behavioral Sciences*, 145, 321–329. <https://doi.org/10.1016/j.sbspro.2014.06.041>
- Mohd, M., Hafizah, N., Abidin, Z., & Mohd, N. (2022). *The governance structure on the role of internal auditors in environmental auditing practices : Cases of Malaysian local organisations.* 9(October). <https://doi.org/10.1016/j.envc.2022.100632>
- Mohd-sanusi, Z., Khalid, N. H., & Mahir, A. (2015). An Evaluation of Clients' Fraud Reasoning Motives in Assessing Fraud Risks : From the Perspective of External and Internal Auditors. *Procedia Economics and Finance*, 31(15), 2–12. [https://doi.org/10.1016/S2212-5671\(15\)01126-0](https://doi.org/10.1016/S2212-5671(15)01126-0)
- Munteanu, V., & Laurentiu, D. (2014). Current Trends in Internal Audit. *Procedia - Social and Behavioral Sciences*, 116, 2239–2242. <https://doi.org/10.1016/j.sbspro.2014.01.551>
- Narcisa, A., Lucan, C., Hlaciuc, E., & Maria, A. (2015). The impact and results of the internal audit activity exercised in the public sector in Romania . *Procedia Economics and Finance*, 32(15), 394–399. [https://doi.org/10.1016/S2212-5671\(15\)01409-4](https://doi.org/10.1016/S2212-5671(15)01409-4)
- Nguyen, Q. K., & Dang, V. C. (2022). Heliyon The impact of risk governance structure on bank risk management effectiveness : evidence from ASEAN countries. *Heliyon*, 8(October), e11192. <https://doi.org/10.1016/j.heliyon.2022.e11192>
- Nordin, I. G. (2022). Critical Perspectives on Accounting Narratives of internal audit : The Sisyphean work of becoming “ independent .” *Critical Perspectives on Accounting*, December 2020, 102448. <https://doi.org/10.1016/j.cpa.2022.102448>
- Othman, R., Abdul, N., Mardziyah, A., & Zainan, N. (2015). Fraud Detection and Prevention Methods in the Malaysian Public Sector : Accountants' and Internal Auditors' Perceptions. *Procedia Economics and Finance*, 28(April), 59–67. [https://doi.org/10.1016/S2212-5671\(15\)01082-5](https://doi.org/10.1016/S2212-5671(15)01082-5)
- Paino, H., Mohd, F., & Abd, F. (2015). The Influence of External Auditor's Working Style , Communication Barriers and Enterprise Risk Management toward Reliance on Internal Auditor's Work. *Procedia Economics and Finance*, 28(April), 151–155. [https://doi.org/10.1016/S2212-5671\(15\)01094-1](https://doi.org/10.1016/S2212-5671(15)01094-1)
- Pejić, M., Dumičić, K., Žmuk, B., Čurlin, T., & Zoroja, J. (2018). ScienceDirect ScienceDirect Internal fraud in a project-based organization : CHAID decision tree Internal fraud in a project-based organization : CHAID decision tree analysis analysis. *Procedia Computer Science*, 138, 680–687. <https://doi.org/10.1016/j.procs.2018.10.090>
- Petra, D., & Tieanu, A. (2014). *The Role of Internal Audit in Fraud Prevention and Detection*. 16(May), 489–497. [https://doi.org/10.1016/S2212-5671\(14\)00829-6](https://doi.org/10.1016/S2212-5671(14)00829-6)
- Plant, O. H., Hillegersberg, J. Van, & Aldea, A. (2022). International Journal of Accounting Rethinking IT governance : Designing a framework for mitigating risk and fostering internal control in a DevOps environment. *International Journal of Accounting Information Systems*, 45(January 2021), 100560. <https://doi.org/10.1016/j.accinf.2022.100560>
- Putu, N., Rosalina, D., Narsa, H., Mega, L., Afifa, E., & Ari, O. (2023). Heliyon Fraud triangle and earnings management based on the modified M-score : A study on

- manufacturing company in Indonesia. *Helijon*, 9(2), e13649. <https://doi.org/10.1016/j.helijon.2023.e13649>
- Qi, Y., & Yuan, Q. (2022). Risk-preparedness mechanism and audit quality : Evidence from mandatory increase of professional indemnity insurance and professional risk fund. *China Journal of Accounting Research*, 100284. <https://doi.org/10.1016/j.cjar.2022.100284>
- Qu, E. M. (2014). *Analysis of internal audit practices on FTSE100*. 15(14), 1265–1272. [https://doi.org/10.1016/S2212-5671\(14\)00587-5](https://doi.org/10.1016/S2212-5671(14)00587-5)
- Rabea, S., & Salmen, K. (2021). Dataset for audit dimensions in an emerging market : Developing a panel database of audit effectiveness and efficiency. *Data in Brief*, 36, 107061. <https://doi.org/10.1016/j.dib.2021.107061>
- Rakipi, R., Santis, F. De, & Onza, G. D. (2021). Journal of International Accounting , Auditing and Taxation Correlates of the internal audit function ' s use of data analytics in the big data era : Global evidence. *Journal of International Accounting, Auditing and Taxation*, 42, 100357. <https://doi.org/10.1016/j.intaccaudtax.2020.100357>
- Rubasundram, G. A. (2015). Perceived " Tone From The Top " During A Fraud Risk Assessment. *Procedia Economics and Finance*, 28(April), 102–106. [https://doi.org/10.1016/S2212-5671\(15\)01087-4](https://doi.org/10.1016/S2212-5671(15)01087-4)
- Saidin, S. Z. (2014). Does reliance on internal auditors ' work reduced the external audit cost and external audit work ? *Procedia - Social and Behavioral Sciences*, 164(August), 641–646. <https://doi.org/10.1016/j.sbspro.2014.11.158>
- Silva, T., Pedro, R., & Marques, P. (2023). ScienceDirect The Impact of ERP Systems in Internal Auditing : The Portuguese. *Procedia Computer Science*, 219, 963–970. <https://doi.org/10.1016/j.procs.2023.01.373>
- Sîrb, L., & Oana, A. (2015). *The qualitative mathematical modeling of the ambiguity within internal audit using fuzzy logic in the forestry entities*. 32(15), 1654–1666. [https://doi.org/10.1016/S2212-5671\(15\)01492-6](https://doi.org/10.1016/S2212-5671(15)01492-6)
- Soon-sinclair, J. M., Nyarugwe, S., & Jack, L. (2023). Food fraud and mitigating strategies of UK food supply chain during. *Food Control*, 148(February), 109670. <https://doi.org/10.1016/j.foodcont.2023.109670>
- Spatacean, I. (2012). Addressing Fraud Risk by Testing the Effectiveness of Internal Control over Financial Reporting Case of Romanian Financial Investment Companies. *Procedia - Social and Behavioral Sciences*, 3(12), 230–235. [https://doi.org/10.1016/S2212-5671\(12\)00145-1](https://doi.org/10.1016/S2212-5671(12)00145-1)
- Suleiman, D. M., & Dandago, K. I. (2014). The extent of internal audit functions outsourcing by Nigerian deposit money banks. *Procedia - Social and Behavioral Sciences*, 164(August), 222–229. <https://doi.org/10.1016/j.sbspro.2014.11.070>
- Tatiana, D., & Ioana, C. (2014). *Measuring the activity of internal audit . Case study at the autonomous administrations in forestry*. 15(14), 1339–1348. [https://doi.org/10.1016/S2212-5671\(14\)00597-8](https://doi.org/10.1016/S2212-5671(14)00597-8)
- Tellechea, M. (2023). *Technovation Innovation in lieu of compliance : Internal audit departments ' standardized and non-standardized knowledge sources*. 123(May 2021). <https://doi.org/10.1016/j.technovation.2023.102720>
- Vitorino, L., Costa, P. D. A., Cesar, F., Silva, A., Alves, V., Francisco, C., Gomes, S., Santos, M., Joaquim^a, G. P., Francisco, C., & Gomes, S. (2022). ScienceDirect ScienceDirect Risk Classification of Spreadsheets for Remediation of Deficiency of the Material Type Weakness in SOX Audit Risk Classification of Spreadsheets for Remediation of Deficiency of the Material Type a * Weakness in SOX.

- Procedia Computer Science*, 214, 696–703.
<https://doi.org/10.1016/j.procs.2022.11.231>
- Vuko, T., Cular, M., & Dra, M. (2022). *International Journal of Accounting Effectiveness of cybersecurity audit.* 44(September 2021).
<https://doi.org/10.1016/j.accinf.2021.100548>
- Wang, M., & Luo, B. (2023). The International Journal of Management Education Effects of start times on academic performance : Will metacognitive learning strategy or flipped classroom approaches help sleepy young university students ? *The International Journal of Management Education*, 21(2), 100806.
<https://doi.org/10.1016/j.ijme.2023.100806>
- Wang, Y., & Li, M. (2011). *Procedia Engineering The Role of Internal Audit in Engineering Project Risk Management.* 24, 689–694.
<https://doi.org/10.1016/j.proeng.2011.11.2719>
- Wittayapoom, K. (2014). New Product Development , Accounting Information , and Internal Audits : A Proposed Integrative Framework. *Procedia - Social and Behavioral Sciences*, 148, 307–314. <https://doi.org/10.1016/j.sbspro.2014.07.047>
- Wu, H., Chang, Y., Li, J., & Zhu, X. (2022). The 8 Financial International fraud analysis on audit information 2020 based 2020 based Financial fraud risk knowledge analysis on audit information ScienceDirect Financial fraud risk knowledge analysis based on audit information graph Financial fraud risk knowledge analysis based on audit information graph Financial fraud on audit information a , b risk analysis knowledge graph. *Procedia Computer Science*, 199, 780–787. <https://doi.org/10.1016/j.procs.2022.01.097>
- Yang, S., Liu, Y., & Mai, Q. (2018). Is the quality of female auditors really better ? Evidence based on the Chinese A-share market q. *China Journal of Accounting Research*, 11(4), 325–350. <https://doi.org/10.1016/j.cjar.2018.07.004>
- Zager, L., Sever, S., & Novak, A. (2016). The Role and Responsibility of Auditors in Prevention and Detection of Fraudulent Financial Reporting. *Procedia Economics and Finance*, 39(November 2015), 693–700. [https://doi.org/10.1016/S2212-5671\(16\)30291-X](https://doi.org/10.1016/S2212-5671(16)30291-X)
- Zhu, X., Ao, X., Qin, Z., Chang, Y., Liu, Y., He, Q., Li, J., Zhu, X., Ao, X., Qin, Z., Chang, Y., Liu, Y., He, Q., & Li, J. (2021). Intelligent financial fraud detection practices in post-pandemic era Intelligent financial fraud detection practices in post-pandemic era. *The Innovation*, 2(4), 100176.
<https://doi.org/10.1016/j.xinn.2021.100176>