



Internal Control over Financial Reporting in Lease Cycles under SOX 404

Nashita Numa Kdua

Hisom*

Universitas Indonesia,
Indonesia

Dwi Martani

Universitas Indonesia,
Indonesia

***Corresponding author:**

Nashita Numa Kdua Hisom.
Universitas Indonesia, Indonesia.
✉ nashita.numa@ui.ac.id

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Abstract

Background: IFRS 16 and its Indonesian adoption through PSAK 73 bring most leases onto the statement of financial position, increasing the importance of reliable contract data and timely control execution in capital-intensive entities.

Objective: This study examines the design and operating effectiveness of internal control over financial reporting (ICoFR) in the lease transaction cycle of a dual-listed infrastructure enterprise during the post-remediation stabilization phase.

Methods: A descriptive qualitative single instrumental case study design was applied using a top-down, risk-based approach derived from PCAOB AS 2201. Evidence was triangulated through semi-structured interviews with six functionally diverse informants, guided observation, and inspection of five key control working papers covering 2023–2026.

Results: All five key controls were adequately designed. However, operating effectiveness testing identified a control deficiency involving delayed lease modification updates and inconsistent data input by field business units. The deficiency did not escalate to a significant deficiency or material weakness because the K-02 compensating control consistently detected and corrected potential misstatements before the financial statements were issued.

Conclusion: Reliable ICoFR in a decentralized lease cycle depends on both sound control design and timely first-line risk ownership. The findings support stronger data standardization, accountability for contract-change reporting, and proportionate, sustainable automation of upstream contract administration.

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INTRODUCTION

The implementation of International Financial Reporting Standard (IFRS) 16 fundamentally changed lease accounting by removing the distinction between finance and operating leases for lessees. In Indonesia, IFRS 16 was initially adopted as PSAK 73: Leases and is currently referred to as PSAK 116: Leases under the prevailing SAK Indonesia numbering. The standard requires lessees to recognize most lease contracts as right-of-use assets and lease liabilities. This treatment differs from the previous PSAK 30 framework, under which operating lease obligations were generally recognized periodically as expenses without corresponding recognition in the statement of financial position (IAI, 2025; Ikatan Akuntansi Indonesia, 2025; Indonesia, 2017). Consequently, lease capitalization increases reported assets and liabilities and may affect leverage, profitability, debt covenants, and other performance measures (Ayu Purba et

al., 2025). Evidence from Asia-Pacific markets further indicates that IFRS 16 has implications for the quality and transparency of accounting information (Pratama et al., 2024; Utami et al., 2024, 2025). Lease accounting is therefore not merely a recording procedure; errors in identifying, measuring, or updating lease transactions may impair the reliability of financial statements and stakeholder decision-making. Accordingly, entities require internal controls that ensure lease information is complete, accurate, timely, and consistently processed throughout the transaction cycle.

The implications of implementing PSAK 116 become much more complex for capital-intensive infrastructure companies because their operational activities depend on a very wide network of leased assets. In contrast to manufacturing companies that have relatively centralized production facilities, infrastructure companies manage thousands of lease contracts involving land, buildings, operational sites, warehouses, equipment, and various other supporting assets with different contractual characteristics. These contracts also often undergo modifications in the form of changes in rental prices, extensions of lease periods, partial terminations of contracts, relocation of assets, and renegotiations during the contract period. As a result, lease accounting is no longer a simple record-keeping activity but has become a business process that involves procurement functions, legal functions, operational units, asset management, accounting functions, finance functions, and information technology systems. The complexity of the relationships among these functions increases the possibility of administrative delays, data-input errors, incomplete documentation, and ineffective communication among work units, which can ultimately affect the quality of financial reporting. Under these conditions, the effectiveness of Internal Control over Financial Reporting (ICoFR) is particularly important to ensure that the accounting information generated accurately reflects the economic substance of lease transactions (Soraya & Mita, 2023).

The urgency of internal control over lease transactions is even greater for multinational companies that are subject to international capital market regulations. PT XYZ, which is the subject of this research, is a subsidiary of an entity listed on the New York Stock Exchange (NYSE) and is therefore required to comply with the provisions of Section 404 of the Sarbanes-Oxley Act (SOX). The regulation requires management to design, document, evaluate, and report on the effectiveness of Internal Control over Financial Reporting. In contrast to internal control evaluations that emphasize only compliance with accounting standards, SOX Section 404 requires companies to demonstrate that their controls are capable of preventing or detecting material misstatements on a timely basis. The evaluation process generally follows the Top-Down Approach stipulated in PCAOB Auditing Standard (AS) 2201, beginning with the identification of significant accounts and disclosures and their relevant assertions, followed by the assessment of risks of material misstatement, identification of relevant controls, and evaluation of control design and operating effectiveness. Given that the value of PT XYZ's right-of-use assets and lease liabilities reaches trillions of rupiah, the lease transaction cycle is automatically one of the high-risk areas that must be evaluated within the scope of ICoFR. In this context, weaknesses in internal control are no longer viewed as mere administrative problems but can lead to material misstatements, adverse audit opinions, regulatory sanctions, reputational damage, and lower investor confidence.

Although companies may already have a formal control framework and Enterprise Resource Planning (ERP) system in place, the implementation of internal controls in highly decentralized organizations still faces various operational challenges. Infrastructure companies generally have many operational units spread across various regions, each of which is responsible for initiating, modifying, or terminating leases according to operational needs. Although the accounting system is supported by various automated controls, the reliability of financial reporting still depends on the quality of information provided by operational units as the first parties responsible for managing transactions in the upstream process. The results of external auditors' evaluations at PT XYZ in 2023–2024 show that some control deficiencies are not caused by accounting calculation errors but instead stem from delays in reporting contract modifications, inconsistencies in documentation, delays in reporting lease terminations, and variations in the quality of data inputs provided by Business Process Owners (BPOs). These administrative problems prevent transaction information from being updated promptly in the accounting system, potentially affecting the completeness and accuracy of financial reporting. To address

these conditions, management has undertaken various remediation efforts, including the implementation of hard blocks in the system, improvements to validation procedures, automated reconciliations, the implementation of compensating controls by the accounting function, and the strengthening of monitoring mechanisms integrated into the ERP system. Although these measures have improved operational processes, their effectiveness during the stabilization phase following the implementation of PSAK 116 still needs to be evaluated to ensure that operational irregularities do not develop into significant control deficiencies or material weaknesses that could affect the reliability of financial statements.

Research on PSAK 116 has predominantly examined the economic consequences of lease capitalization, including changes in leverage, profitability, financial performance, and market responses (Lestari et al., 2022; Nomorissa & Lindrawati, 2021; Saing & Firmansyah, 2021; Setiawan et al., 2023). This literature establishes the financial-statement consequences of recognizing lease liabilities, but it provides limited evidence on how organizations design, execute, and evaluate the controls that sustain reliable lease information after adoption. The unresolved issue is therefore not whether capitalization changes reported figures but how control systems preserve the completeness, accuracy, and timeliness of the underlying contract data once implementation has stabilized.

Qualitative evidence on ICoFR for lease transactions remains limited, particularly in developing-country entities subject to SOX Section 404. Amarullah (2025) notes the scarcity of operational ICoFR evidence, while Siagian (2021) and Alexander (2025) emphasize organizational adjustment, system migration, policy change, and risks during or near initial implementation. These studies do not explain whether controls continue to operate consistently during the post-remediation stabilization phase, when system configuration is established but decentralized business units remain responsible for communicating contract changes. Nor do they integrate PCAOB AS 2201 deficiency-severity assessment with the COSO Internal Control Integrated Framework and the Three Lines Model to connect a control exception with its governance cause and financial-reporting consequence (Board, 2007; Novatiani et al., 2024).

This study addresses that gap by examining the design and operating effectiveness of five interdependent controls in PT XYZ's lease transaction cycle during the post-remediation stabilization phase. Its methodological contribution is an integrated diagnostic sequence: PCAOB AS 2201 is used to evaluate control design, execution, and deficiency severity; the Three Lines Model identifies the organizational location of risk-ownership failures; and the COSO framework explains the affected control component. This integration moves beyond the parallel application of three frameworks by linking the origin, mitigation, and financial-reporting significance of each exception. The study aims to determine whether the control suite prevents or detects material misstatements on a timely basis, identify the causes of recurring exceptions, and formulate governance improvements for capital-intensive entities subject to PSAK 73 and SOX Section 404.

METHOD

This study evaluates the adequacy of control design and the consistency of control execution in PT XYZ's lease transaction cycle. In this qualitative context, "design effectiveness" denotes whether a control is appropriately designed to prevent or detect a relevant misstatement, whereas "operating effectiveness" denotes whether the control was performed by authorized personnel, with the required evidence and frequency, during the period examined. These terms are therefore criterion-based audit judgments rather than statistical measures of causal effectiveness.

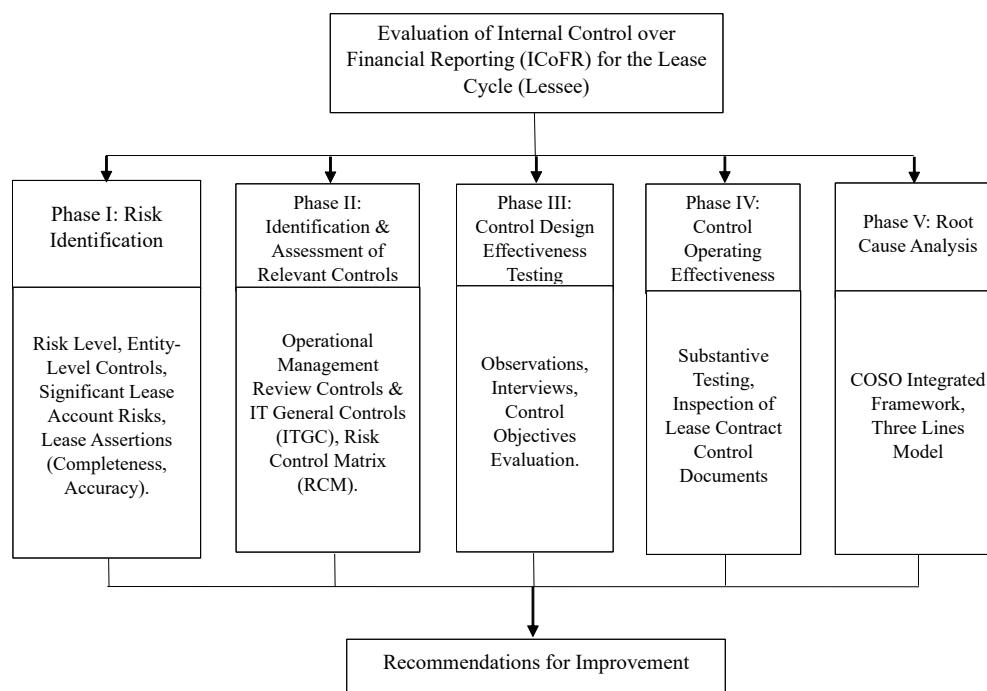


Figure 1. Research Framework

This study used a descriptive qualitative method with a single instrumental case study design to investigate Internal Control over Financial Reporting (ICoFR) governance during the post-remediation stabilization phase. The case focused on the Leased Asset Operation and Leased Asset Controlling and Reporting units of PT XYZ as the lessee. Control design, execution, and deficiency severity were examined using a top-down, risk-based approach based on PCAOB AS 2201. This approach enabled the empirical evidence for each key control to be traced from the relevant financial statement risk and assertion to the documented control response and identified exception.

The study was conducted at PT XYZ, an entity that manages an extensive physical infrastructure network in Indonesia. The analysis focused on the end-to-end lease process, beginning with upstream activities in the Leased Asset Operation unit and extending to downstream accounting activities in the Leased Asset Controlling and Reporting unit. PT XYZ was selected because of the capital-intensive characteristics of its operations and its status as a subsidiary of an entity subject to the requirements of Section 404 of the Sarbanes-Oxley Act (SOX). These characteristics make its lease transaction cycle particularly relevant for examining the design and operating effectiveness of Internal Control over Financial Reporting (ICoFR).

The research population comprised personnel and documents involved in PT XYZ's lease governance. Six informants were selected purposively because they possessed technical competence, formal authority, and direct involvement across the first, second, and third lines. Informant A was the Lease Asset Operational Manager; B coordinated contract preparation and month-end closing; C oversaw lease-payment reconciliation; D and E performed financial reporting and controlling activities; and F was an Internal Audit Manager responsible for independent evaluation and remediation oversight. Recruitment stopped when these roles covered the complete end-to-end control chain and successive interviews no longer produced a new control, exception type, or explanation relevant to the research questions. This criterion was used as evidence of thematic sufficiency rather than numerical representativeness. Alphabetical codes were used to protect the informants' identities and corporate confidentiality.

Primary data consisted of semi-structured interviews with six informants and guided observation notes. Secondary data comprised the 2023–2026 control evidence archive, including working papers for K-23 contract scoping, K-22 lease contract review, K-26 lease payments, K-11 lease modifications, and K-02 lease accruals and month-end closing. All informants provided informed consent, and management authorized the academic use of internal documents subject

to confidentiality safeguards. Researcher bias was managed through source triangulation, comparison of interview claims with dated audit trails and working papers, maintenance of an evidence matrix linking each conclusion to its source, and review of discrepant evidence before deficiency classification.

Data were collected through three complementary procedures. First, semi-structured interviews captured how control owners and assurance personnel understood and executed their responsibilities. Second, document inspection traced the audit trail for K-23, K-22, K-26, K-11, and K-02 during 2023–2026. Third, guided observation with process owners examined how anomalies were handled in practice. Cross-source comparison was used to confirm or challenge each finding rather than relying on management explanations alone.

Analysis followed four criterion-based qualitative stages. First, design effectiveness was assessed by comparing each Risk Control Matrix specification with the relevant risk of material misstatement and financial statement assertions. Second, operating effectiveness was assessed based on documented evidence of whether authorized personnel performed the control at the prescribed frequency throughout 2023–2026; this assessment did not represent a statistical effect estimate. Third, the Three Lines Model and the five COSO components were used to locate the governance source of exceptions. Fourth, identified weaknesses were classified as a Control Deficiency, Significant Deficiency, or Material Weakness using the criteria established under SOX Section 404 and PCAOB AS 2201. An evidence matrix and triangulation across interviews, observations, and documents supported the audit trail from raw evidence to classification.

RESULT AND DISCUSSION

Results

Stages of Risk-Based ICoFR Evaluation

The ICoFR evaluation followed a Top-Down Risk-Based Approach based on PCAOB AS 2201. The first stage involved determining the scope and materiality of relevant financial-statement accounts. Management applied the recognition exemptions under PSAK 116 for short-term leases of 12 months or less and leases of low-value assets in accordance with the company's established capitalization criteria. Based on this assessment, Right-of-Use (ROU) Assets and Lease Liabilities were identified as significant accounts because of their material balances and exposure to risks affecting the completeness and accuracy assertions. The second stage identified relevant controls and documented the end-to-end business process in the Risk Control Matrix (RCM). The third and fourth stages assessed control design and operating effectiveness using corporate working papers and audit-trail evidence from the 2023–2026 stabilization period. The final stage assessed the severity of identified control exceptions and determined the appropriate remediation and reporting response.

Key Control Design Effectiveness Evaluation Results

The design assessment examined whether PT XYZ's control activities were appropriately configured to prevent or detect material misstatements in the lease transaction cycle before they affected the financial statements. Evidence was obtained from the Risk Control Matrix (RCM), company policies and procedures, business-process walkthroughs, observations of system implementation, and interviews with control owners. The five key controls were evaluated according to the clarity of their control objectives, the adequacy of their procedures, their integration across the lease process, the assignment of responsible control owners, and their ability to address relevant financial-statement assertions.

The evaluation shows that PT XYZ's ICoFR is organized as a layered control suite. K-23 identifies transactions within the scope of PSAK 116; K-22 validates contract substance and parameters; K-26 controls payment recognition; K-11 monitors contract modifications; and K-02 reviews final reporting. Together, these controls address the lease cycle from initial identification to financial-statement presentation. The design assessment therefore considered the combined ability of the controls to prevent or detect material misstatements rather than treating each control as an isolated procedure.

In the initial stage, Control K-23 was designed as a detective control that functions to screen the population of rental transactions before they are processed in the lease accounting module. The control is carried out through a mechanism that matches several key attributes,

namely vendor names, asset classes, and Site IDs, to classify transactions as in-scope or out-of-scope categories according to the scope of PSAK 116. The walkthrough results show that the classification parameters have been systematically configured to prevent the same transaction from being processed more than once (double accounting). Although the system still allows manual entry of location names for certain asset groups that do not yet have standardized Site IDs, this condition relates more to the quality of input data than to a weakness in the control design. Therefore, in terms of design, K-23 is considered adequate in supporting the completeness assertion for the recording of lease transactions. This assessment was strengthened by the statement of Resource Person A, who explained that the transaction-identification process has been automatically integrated between systems so that the entire transaction population can be fully monitored: "In terms of completeness, we are safe because the source has been automatically generated... at D+1. Every month we control the number of transactions, and the flow has entered through ITGC control. We told the auditor that this is a system-to-system that should be complete." (Resource Person A, May 8, 2026).

After the transaction is successfully identified, the process continues with Control K-22, which functions as an IT-dependent manual control to conduct a substantive review of the lease agreement. Unlike K-23, which filters transactions based only on system parameters, K-22 is designed to thoroughly review contract clauses through a reasonableness-check process. The evaluation showed that the control design accommodates the extraction of key parameters, such as the lease period, renewal options, payment schedule, and Incremental Borrowing Rate (IBR), before these parameters are documented in the Minutes of Fair Rent Data. Thus, the company not only relies on automatic classification but also adds a layer of manual inspection to ensure that all measurement parameters comply with the provisions of PSAK 116. The integration between K-23 and K-22 shows that the processes of identifying transactions and assessing the substance of contracts have been designed sequentially to maintain the reliability of the accuracy and completeness assertions.

The next layer of control is Control K-26, which focuses on the rental-liability payment process. The results of the evaluation show that this control is designed as an automated preventive control that ensures that reductions in Lease Liabilities can occur only after payment has been confirmed by the Treasury function. The control is carried out through a reconciliation between bank-clearing data and Lease Liability Movement, supported by a system hard-stop mechanism, so that the system automatically rejects the payment application if the payment has not actually occurred. Data integration among the Treasury, Lease Accounting, and ERP functions strengthens the control design by minimizing manual intervention and reducing the risk of premature liability recognition and delayed payment recording.

Furthermore, K-11 is designed to control changes in contract conditions during the lease period. The evaluation shows that any changes in price, lease period, termination, novation, or contract scope must be processed through the Perform Modify mechanism before affecting the accounting records. In addition, the company implements the Unusual Balance Report as a detective mechanism to identify unreasonable balances resulting from contract modifications. The requirement for formal documentation, such as an amendment agreement or Minutes of Meeting, before changes are processed in the system indicates that the control design has linked the contract-administration process with the accounting process, ensuring that all changes have an adequate documentary basis. Therefore, K-11 is considered to provide an adequate mechanism for maintaining the reliability of the accuracy assertion regarding changes in the value of Right-of-Use Assets and Lease Liabilities.

As the final layer of control, Control K-02 functions as a detective control at the financial-reporting stage. The results of the evaluation show that the company requires an analytical review, recalculation using the PSAK 116 Manual Calculator, and testing of transaction samples each month before the financial statements are issued. The recalculation results are then reconciled with the Top Schedule and General Ledger to ensure that all balances are properly tied out. The existence of this independent recalculation procedure indicates that the company implements a compensating control capable of detecting errors that may not have been identified at previous control stages. Thus, K-02 serves not only as a reconciliation process but also as a final control that provides assurance regarding the fair presentation of Right-of-Use Assets and Lease Liabilities in the financial statements.

Overall, the five key controls had clearly defined objectives, documented procedures, identifiable control owners, traceable evidence, and complementary functions throughout the lease transaction cycle. Although potential risks remained in the quality and consistency of upstream input data, including variations in Site ID entry, these conditions did not indicate deficiencies in the underlying control design. Accordingly, all five controls were assessed as having effective designs. PT XYZ's ICoFR architecture was therefore considered adequately designed to address the identified risks of material misstatement in the lease transaction cycle. No design deficiencies were identified within the controls examined in this study.

Table 1*Summary of Design Effectiveness Evaluation Results*

Key Control	Control Objectives	Evaluation Results
K-23	Lease Contract Scoping	Effective design
K-22	Contract Parameter Validation	Effective design
K-26	Lease Payments	Effective design
K-11	Lease Modifications	Effective design
K-02	Lease Month-End Closing Reporting	Effective design

Source: Researcher's Processed Results (2026)

Key Control Operational Effectiveness Evaluation Results

Operational effectiveness testing evaluates whether well-designed controls are actually carried out consistently in practice by authorized personnel. The testing method involved inspection of original physical documents, reperformance of calculations, and review of audit trails from the company's actual working papers for the 2023–2026 period. The factual findings are presented in the following narrative. For Control K-23, inspection of the Scoping MPA document and the active lease register (Lease Register) demonstrated that the system consistently and automatically generates procurement data for each D+1 and transfers it to the lease accounting module, thereby supporting population completeness. However, in practice, a control exception was identified: variations in the entry of location names due to manual-text-entry gaps for supporting assets were still found in the field.

The weakness arising from variations in input data was consistently mitigated by Control K-22. Inspection of the Lease Data Fairness Minutes showed that the accounting staff diligently performed a line-by-line manual review of the original physical contract documents to ensure the accuracy of parameter data before the system calculation was locked. Resource Person A explained this fact: "User friends sometimes type the location name a little differently, so we are confused whether this is one asset or two, so we have to compare it with the contract to see if the vendor and the lease period are the same, the lease of the asset is good, we absolutely focus on the review of the contract" (Interview with Resource Person A, May 8, 2026).

This finding is also consistent with the statement of Resource Person B, who is responsible for the contract-review control, that at the scoping stage, data anomalies can be identified that have passed through Control K-23 but are subsequently detected by the K-22 Contract Review Control: "There must be (anomalies that escape). Because the scoping process carries out a checking process only based on its parameters. They don't do a review contract, check it only based on system reading data, don't open documents at all. Yes, it is automatic in terms of function and also in terms of data flow, the review contract process is in my place" (Interview with Resource Person B, June 10, 2026).

This factual statement shows that manual substantive verification activities are performed consistently to correct inconsistencies in the names of lease objects originating from upstream processes, as well as other contract parameters that meet the qualification criteria for leased assets under PSAK 116, thereby maintaining the accuracy and completeness assertions before the data are locked in the Lease Accounting system.

Furthermore, based on the evaluation of Control K-26, inspection of the Rent Payment MPA and Bank Clearing Report for January 2026 demonstrated a No Timing Difference status across all samples because the system automation feature consistently blocks reductions in rental liabilities before cash outflows are validated by Treasury.

However, operational testing identified a control exception in Control K-11, which oversees lease modification transactions. Inspection of the Modified MPA and amortization adjustment report detected administrative delays (lag time) in updating system data, ranging from one to two months beyond the current book-closing deadline. The delay occurred because the field engineering unit was late in submitting agreement documents related to amendments to new contracts, vendor novations, or minutes of physical dismantling associated with the early termination of leased assets to the downstream accounting department.

The operational exception related to the delayed modification data in Control K-11 was fully mitigated by Control K-02 at the final reporting stage. Through inspection of Top Schedule files, Lease Liability Movement reports, and Final Reporting KKP, evidence was found that the reporting function consistently sampled at least 25 monthly transactions for recalculation using the spreadsheet application "PSAK 116 Manual Calculator." This monthly analytical recalculation successfully isolated the upstream accrual anomaly and immediately corrected it through a backdated adjustment journal before the final financial statements were issued.

Based on all stages of the evaluation, a summary of the design and operational evaluation findings identified in the field is presented in Table 2.

Table 2

Summary of Lease-Cycle Control Evaluation Results

Control Code	Control Type	Target Assertion	Design Effectiveness	Operating Effectiveness
K-23	Detective	Completeness, Accuracy, Existence/ Occurrence	Effective	Effective
K-22	Detective	Completeness, Accuracy, Existence/ Occurrence	Effective	Effective
K-26	Preventive	Completeness, Accuracy, Existence/ Occurrence	Effective	Effective
K-11	Detective	Completeness, Accuracy	Effective	Effective with Exceptions
K-02	Detective	Existence/ Occurrence, Completeness, Accuracy, Presentation & Disclosure	Effective	Effective as Compensating Control

Source: Researcher's Processed Results (2026)

Before determining the severity of the identified control findings, each operating-control exception was screened against the applicable deviation and deficiency criteria, as presented in Figure 2. This screening distinguished isolated procedural exceptions from recurring conditions that could represent a formal control deficiency. The assessment considered the nature and frequency of the exceptions, their effects on relevant financial-statement assertions, and whether existing controls prevented or detected potential misstatements in a timely manner.

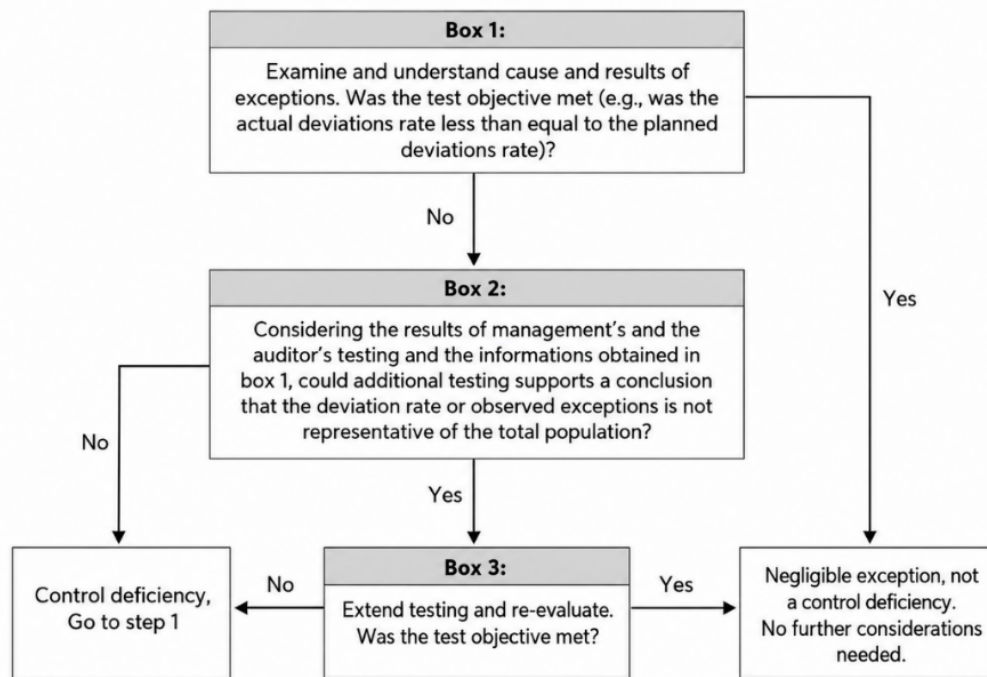


Figure 2. Operational Control Exception Screening Pipeline
Source: Internal Control Assessment Methodology Framework (IAI, 2025)

Based on the decision process presented in Figure 2, testing of K-11 identified recurring delays in recording lease modifications. The observed deviations exceeded the expected tolerance and, based on additional document inspection, represented recurring conditions rather than isolated errors. Because extended testing did not eliminate the identified concern, the K-11 exception was classified as a Control Deficiency and subjected to further root-cause and severity assessment. The subsequent analysis examined the organizational origin of the deficiency and whether compensating controls prevented its escalation to a Significant Deficiency or Material Weakness.

Discussion

Root-Cause Analysis Using the Three Lines Model

The K-11 Control Deficiency originated primarily in the first line, where field engineering units and Asset Management acted as Business Process Owners for contract changes and physical asset events. Interviews and document inspection showed that these units often treated amendments, novations, and early terminations as operational matters and did not report their accounting consequences promptly. The resulting one- to two-month delay interrupted the timely transfer of lease parameters to the accounting system. Conceptually, the finding reflects insufficient risk ownership at the point where economically significant information is created rather than an inadequacy in the downstream accounting calculation.

The second line, represented by accounting, financial policy, lease reporting, and controlling functions, established standards, monitored compliance, reviewed contract parameters through K-22, and reperformed calculations through the K-02 compensating control. The third line, Internal Audit, independently assessed SOX 404 controls and monitored remediation. These layers prevented the first-line delay from becoming a material misstatement, but their success also reveals a governance imbalance: repeated downstream correction can preserve reporting reliability while masking persistent upstream accountability and efficiency problems.

This finding extends Siagian (2021), Aprilia et al. (2023) and Prasasti et al. (2025). Once the PSAK 116 system configuration has stabilized, the dominant risk shifts from technical implementation to the timeliness and quality of information supplied by business process owners. Accordingly, operating effectiveness depends on coordination among control owners as well as the formal adequacy of ERP configuration.

Root-Cause Analysis Using the COSO Internal Control Integrated Framework

Within the COSO framework, the principal weakness concerns Information and Communication rather than the design of Control Activities. PT XYZ's automated lease module and authorization structure were adequate, but delayed transmission of contract changes prevented the system from processing current economic information. The finding demonstrates a practical limitation of automation: technically sound control architecture cannot ensure reliable reporting when upstream information is incomplete or delayed.

The K-02 compensating control demonstrates the role of Monitoring Activities. Independent analytical review and manual reperformance detected and corrected delayed updates before the financial statements were issued. Under PCAOB AS 2201, this evidence reduced the likelihood that the K-11 exception would result in a material misstatement. Nevertheless, dependence on repeated downstream correction is not equivalent to sustainable first-line control; remediation should therefore prioritize timely source-data ownership rather than duplicate detective reviews.

The findings are consistent with Alexander (2025), who identified completeness and accuracy as critical assertions in the lease transaction cycle. In the present study, K-23 supported completeness by identifying transactions within the scope of PSAK 116, while K-22 supported completeness and accuracy by validating contractual and measurement parameters before the data were finalized in the lease accounting system. However, the findings further demonstrate that adequate control design alone does not eliminate financial-reporting risk. Delayed communication of contract modifications by operational units can still impair the timeliness and accuracy of lease information. Consequently, reliable ICoFR depends not only on appropriately designed controls but also on timely information flows and effective coordination among control owners.

Results of ICoFR Deficiency Severity Classification

The K-11 exception was assessed using the deficiency-severity sequence presented in Figure 3. The assessment considered the likelihood that delayed contract updates could result in a misstatement, the potential magnitude of such a misstatement, and the precision and consistency of the relevant compensating control. Testing showed that K-02 consistently detected and corrected potential differences before the financial statements were issued. No individual or aggregate evidence indicated a reasonable possibility of material misstatement. Accordingly, the K-11 weakness was classified as a Control Deficiency rather than a Significant Deficiency or Material Weakness. This classification does not eliminate the significance of the recurring delay; instead, it distinguishes the operational and governance implications of the deficiency from its assessed financial-statement severity.

The third step was specifically designed to test the existence of compensating controls. The evaluation of this severity escalation was operationalized systematically following the four main stages described in Figure 3.

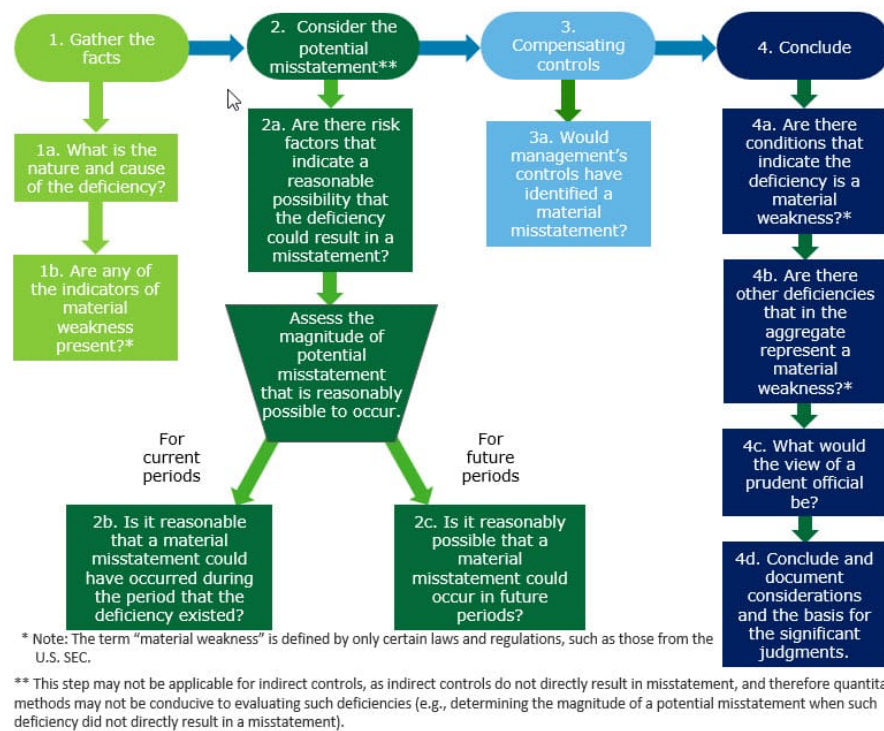


Figure 3. Severity Evaluation Framework
Source: Commission (2013) and Huang, (2026)

Testing showed that K-02 consistently detected and corrected potential differences before book closing. No individual or aggregate evidence indicated a reasonable possibility of material misstatement, and the documented compensating control operated with sufficient precision. The K-11 weakness was therefore classified as a Control Deficiency rather than a Significant Deficiency or Material Weakness. This classification does not dismiss the recurring delay; it distinguishes its governance and efficiency implications from its assessed financial-statement severity.

Table 3
Summary of the Results of the ICoFR Evaluation

Key Control	Design Effectiveness	Operating Effectiveness	Findings	Classification
K-23	Effective	Effective	Variation in Site ID/location-name input.	Effective
K-22	Effective	Effective	Upstream data inconsistencies detected through contract review.	Effective
K-26	Effective	Effective	No timing difference identified.	Effective
K-11	Effective	Effective with Exceptions	Delayed lease-modification updates of 1–2 months.	Control Deficiency
K-02	Effective	Effective	Potential differences detected and corrected before financial reporting.	Effective – Compensating Control

Source: Researcher's Processed Results (2026)

The principal contribution of this study is the finding that an exception in one control does not, by itself, establish failure of the ICoFR system. Severity depends on the relationship among controls, the precision of compensating controls, and whether potential misstatements are corrected before reporting. The integrated use of PCAOB AS 2201, the Three Lines Model, and COSO connects the exception's reporting significance with its organizational cause: first-line delays impaired information flow, while second- and third-line activities preserved reporting reliability.

Practically, system automation should be accompanied by explicit accountability for timely contract-change reporting, standardized transaction identifiers, and monitoring of first-line data quality. These measures would reduce reliance on labor-intensive downstream reperformance and make the control suite more sustainable during the stabilization phase.

Formulation of Recommendations for Improvement and Risk Mitigation

The first recommended improvement is to standardize location identifiers (Site IDs) across non-core leased assets, including offices and warehouses. Restricting free-text entry in the procurement module and requiring the selection of a unique location code would reduce inconsistent naming and the risk of duplicate records before K-23 screening.

The second recommendation is to establish a controlled roadmap for automated contract-data extraction. Any artificial-intelligence or machine-learning module should first be piloted against verified amendments and should require human approval before transferring commencement dates, lease terms, or lease values to the ledger. The objective is to accelerate the identification of contract changes while preserving an auditable review trail; the recommendation is prospective and was not tested as part of this study.

CONCLUSION

PT XYZ's five key lease-cycle controls were adequately designed, but operating effectiveness depended on timely execution across organizational lines. Testing identified a recurring K-11 Control Deficiency involving delayed lease-modification updates and inconsistent upstream data. The deficiency did not escalate because the K-02 compensating control detected and corrected potential misstatements before the financial statements were issued. The evidence therefore supports a system-level conclusion: ICoFR reliability is determined by the interaction among control design, execution, and the precision of compensating controls.

Academically, the study contributes an integrated diagnostic application of PCAOB AS 2201, the Three Lines Model, and COSO during the post-remediation stabilization phase. Practically, PT XYZ should strengthen first-line accountability, standardize source data, and reduce dependence on manual downstream correction. The single-case, lessee-focused design and concentration on SOX 404 controls limit transferability. Future research should compare industries, observe remediation longitudinally, and test whether governed automation improves timeliness without weakening auditability.

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AUTHOR CONTRIBUTION STATEMENT

Nashita Numa Kdua Hisom contributed to carrying out the main research, data collection, data analysis and manuscript writing. Dwi Martani provides theoretical and methodological direction, supervises the research framework, and critically revises manuscripts related to important intellectual substances. All authors have read and approved the final manuscript.

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