

The Impact of Management Accounting Information Systems and Accounting Information Quality on Managerial Performance: Internal Control as a Moderating Factor

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Abstrak. Penelitian ini menganalisis pengaruh Sistem Informasi Akuntansi Manajemen (SIAM) dan Kualitas Informasi Akuntansi (KIA) terhadap Kinerja Manajerial, dengan Pengendalian Internal (PI) sebagai variabel moderasi di PT. Metinca Prima Industrial Works. Permasalahan terkait efektivitas SIAM dan KIA dalam meningkatkan kinerja, serta peran krusial PI, masih memerlukan eksplorasi empiris, khususnya dalam konteks industri manufaktur di Indonesia. Penelitian kuantitatif ini menggunakan data primer yang dikumpulkan melalui survei terhadap 85 manajer dan staf akuntansi/keuangan yang relevan (dari total populasi 405). Data dianalisis menggunakan metode Partial Least Squares – Structural Equation Modeling (PLS-SEM) dengan SmartPLS. Hasil penelitian menunjukkan bahwa SIAM berpengaruh positif signifikan terhadap Kinerja Manajerial ($\beta = 0.241$, $p = 0.031$). Demikian pula, KIA juga berpengaruh positif signifikan terhadap Kinerja Manajerial ($\beta = 0.426$, $p = 0.001$). Selain itu, PI ditemukan memoderasi hubungan antara SIAM dan Kinerja Manajerial secara signifikan, serta memoderasi hubungan antara KIA dan Kinerja Manajerial secara signifikan. Model penelitian ini menjelaskan 61.1% variasi Kinerja Manajerial ($R^2 = 0.611$), menunjukkan kekuatan prediktif yang baik. Temuan ini menggarisbawahi pentingnya SIAM dan KIA yang efektif untuk meningkatkan kinerja manajerial, serta menyoroti peran PI dalam membentuk hubungan tersebut. Penelitian ini memberikan kontribusi teoritis dan implikasi praktis bagi manajemen PT. Metinca Prima Industrial Works untuk mengoptimalkan sistem informasi dan pengendalian guna mencapai kinerja yang lebih baik.

Kata kunci: Sistem Informasi Akuntansi Manajemen; Kualitas Informasi Akuntansi; Kinerja Manajerial; Pengendalian Internal; PLS-SEM.

Abstract. This study analyzes the influence of Management Accounting Information Systems (MAIS) and Accounting Information Quality (AIQ) on Managerial Performance, with Internal Control (IC) as a moderating variable at PT. Metinca Prima Industrial Works. Issues regarding the effectiveness of MAIS and AIQ in improving performance, as well as the crucial role of IC, still require empirical exploration, particularly within the Indonesian manufacturing industry context. This quantitative study utilized primary data collected through a survey of 85 relevant managers and accounting/finance staff (from a total population of 405). Data were analyzed using Partial Least Squares – Structural Equation Modeling (PLS-SEM) with SmartPLS. The results indicate that MAIS significantly and positively impacts Managerial Performance ($\beta = 0.241$, $p = 0.031$). Similarly, AIQ also significantly and positively impacts Managerial Performance ($\beta = 0.426$, $p = 0.001$). Furthermore, IC was found to significantly moderate the relationship between MAIS and Managerial Performance, and to significantly moderate the relationship between AIQ and Managerial Performance. The research model explains 61.1% of the variance in Managerial Performance ($R^2 = 0.611$), demonstrating good predictive power. These findings underscore the importance of effective MAIS and AIQ in enhancing managerial performance, and highlight the role of IC in shaping these relationships. This study offers theoretical contributions and practical implications for the management of PT. Metinca Prima Industrial Works to optimize information systems and controls for improved performance.

Keywords: Management Accounting Information Systems; Accounting Information Quality; Managerial Performance; Internal Control; PLS-SEM.

Introduction

PT. Metinca Prima Industrial Works continues to rely on Microsoft Excel for managing accounting information, rather than specialized accounting software. As a result, the manual input of financial reports often leads to delays in report generation, and the complexity of numerous formulas used increases the risk of errors. The adoption of a more appropriate software solution could help mitigate these issues, improve the accuracy of reports, and enhance the overall quality of financial information (Putra Prima & Dasa Putri, 2020). As noted by Rialdy (2022), the value of financial reports diminishes if they are delayed, as the relevance of the information decreases over time. For accounting information to be efficient, it must be timely and accessible when required. Additionally, it should be comprehensive, containing all necessary details without omissions. The concept of quality information, as defined by Darma & Sagala (2020), is central to ensuring that accounting information systems provide outputs that are not only relevant for decision-making but also easy to understand and aligned with user needs.

Microsoft Excel, despite its widespread use, can produce inaccurate financial reports due to the potential for formula errors. Its manual data entry process increases the likelihood of inaccuracies, requiring precise input to minimize errors. When discrepancies occur, Excel does not automatically correct them, which necessitates manual intervention (Ogearti, 2020). This manual process is particularly problematic for companies involved in trading and manufacturing, which need to classify financial data properly and calculate metrics such as cost of goods sold. Excel's reliance on formulas and programming languages can complicate the user experience. Moreover, since Excel lacks features tailored for financial reporting, it demands more manual effort compared to specialized accounting software (Putra Prima & Dasa Putri, 2020). According to Supratinigrum & Lukas (2021), management accounting information systems (MAIS) have a positive effect on managerial performance. Improved systems lead to better performance by

providing managers with more accurate and timely information, supporting decision-making. Similarly, Agustin (2019) found that the characteristics of MAIS significantly impact managerial performance. The historical evolution of spreadsheets such as Lotus 1-2-3 and Excel in accounting is worth noting. In the early phase, studies explored the adoption of spreadsheets in accounting functions, revealing both revolutionary potential and initial concerns. These concerns often centered on the risk of errors and lack of control. In the intermediate phase, research began to examine the broader impact of spreadsheet use on accounting processes, including issues related to efficiency, data integrity, and error susceptibility. More recent studies have focused on how Excel integrates with other systems and its influence on operational and managerial performance. One of the key drivers of company success is the availability of accurate data, which forms the foundation for planning, monitoring, and evaluation. Managers require reliable accounting information to make informed decisions (Akbar & Harahap, 2021).

The quality of this information is essential for business decision-making and must meet the normative standards for corporate accountability, ensuring that financial reports are complete, transparent, and useful to stakeholders (Ladewi *et al.*, 2023). High-quality information is characterized by accuracy, speed, relevance to management needs, and completeness (Kurniawan & Purwanti, 2017). The greater the quality of the information provided, the higher the satisfaction of end users regarding its availability, security, maintenance, and integrity (Alfiani *et al.*, 2022). Internal control is a critical factor in ensuring that data entered into accounting systems is accurate, timely, and in compliance with company procedures. As companies grow, internal control mechanisms become increasingly important to manage risk and enhance data reliability (Sambodo & Thussa'adiyah, 2020). Effective internal control helps minimize errors and fraud, ultimately improving managerial performance (Wijaya *et al.*, 2020). For MAIS to function optimally and achieve management's objectives, robust internal controls are necessary (Kurniawan & Purwanti, 2017).

These controls help ensure compliance, mitigate risks, and provide the necessary checks and balances to achieve operational, financial, and compliance goals (Wijaya *et al.*, 2020). Interviews conducted at PT. Metinca Prima Industrial Works revealed weaknesses in the enforcement of sanctions, which reflected a broader issue with the company's control mechanisms. Although sanctions are crucial for maintaining discipline and preventing repeated violations, the company has pledged to apply them fairly and without bias. Supervision, regulatory procedures, and firm control are essential to enhancing organizational performance. Every organization must have an internal control system to effectively manage its operations (Hafsah & Loka, 2021). If mismanagement occurs, it could lead to substantial financial losses. To prevent such deviations, it is essential for companies to implement a well-structured internal control system that aids in managing activities, such as risk assessment, control activities, information dissemination, and supervision (Dwiastuti *et al.*, 2023). Several factors influence internal control effectiveness, including rewards, work stress, and the work environment (Purwoko *et al.*, 2022). Interviews with employees at PT. Metinca Prima Industrial Works indicated that the company's reward system is not yet formalized and is based on teamwork rather than individual achievements. However, the company values collective effort and holds open discussions to address employee satisfaction regarding the reward system.

Hanum & Hafsah (2023) emphasized that a well-defined reward and punishment system motivates managers and enhances performance. A reward system that aligns with individual needs can increase organizational effectiveness, improve job satisfaction, and ultimately contribute to a more efficient work environment (Siagian *et al.*, 2019). The study by Nengsi (2021) confirms that internal control positively impacts managerial performance, meaning that stronger internal controls correlate with better managerial performance, as also noted by Hidayati & Dianawati (2017). Despite extensive research on the impact of accounting information systems, the role of Microsoft Excel specifically in supporting

managerial performance within Indonesian manufacturing companies remains underexplored. Most previous studies have focused on the risks associated with Excel, but have not addressed how internal control mechanisms can moderate the relationship between Excel usage and managerial performance, particularly in dynamic operational environments. Additionally, there is a gap in research that integrates the technical aspects of Excel usage with its managerial implications and the role internal control plays in this context. This study aims to address these gaps by integrating Goal-Setting Theory, Expectancy Theory, and Contingency Theory to explore how internal control moderates the relationship between Excel usage and managerial performance. According to Goal-Setting Theory, managers who use Excel to track progress toward goals, such as sales targets and departmental budgets, are likely to perform better due to the clear feedback provided by the system. Expectancy Theory suggests that if managers believe that proficient Excel use will lead to better performance and rewards, their motivation will increase, thereby enhancing their performance. Contingency Theory posits that there is no universal solution in management, and the effectiveness of practices such as Excel use is influenced by situational factors, thereby justifying the introduction of moderating variables in this study.

Research Methodology

This study employs a quantitative research approach, which focuses on examining relationships between variables through statistical analysis. Quantitative research emphasizes objectivity, and the data obtained are analyzed numerically. This approach is particularly useful for ensuring that results can be tested for validity and reliability (Sahir, 2021). The research is of an associative nature, aiming to identify and analyze the relationships between two or more variables. Understanding these interrelations is critical for determining how these variables are interdependent (Ritonga, 2020). The research was conducted at PT. Metinca Prima Industrial Works, located at

Jl. Rawa Sumur Barat No. 6, Kawasan Jakarta Industrial Estate, RT.2/RW.9, Pulogadung, Cakung, East Jakarta City, Jakarta 13930. The study commenced in March 2024, with data collection planned to extend through November 2024. The population for this study consists of all employees at PT. Metinca Prima Industrial Works, totaling 405 individuals. According to Amin *et al.* (2023), the population refers to the entire group of individuals or items that share specific characteristics relevant to the research. For sampling, the study utilized simple random sampling, ensuring that each employee had an equal chance of being selected. This method reduces bias and ensures the representativeness of the sample (Sahir, 2021). Using the Slovin formula, the sample size was determined to be 80 employees. Data collection was conducted using a survey method, employing a structured questionnaire. After obtaining formal permission from the management of PT. Metinca Prima Industrial Works in October 2024, questionnaires were distributed both physically (face-to-face) and via Google Forms to respondents who met the sample criteria. The distribution was carried out directly within the accounting and finance department of PT. Metinca during the period from March to November 2024. Prior to distributing the questionnaires, the researcher provided a brief explanation to the participants regarding the purpose of the study, the importance of accurate data collection, and assured the confidentiality of respondents' identities and responses. Respondents were allotted 15 to 20 minutes to complete the questionnaires on-site, which helped reduce missing data and allowed for real-time clarification of any questions. For those unable to complete the questionnaire on-site due to time constraints, arrangements were made to collect the responses within the following 1-2 business days.

$$n = \frac{N}{1 + N \cdot e^2}$$

n = Sample Size/Number of Respondents

N = Population Size

E = Percentage of Allowance of Accuracy (The level of error taken in this sampling is 5%)

The respondents for this study were employees of PT. Metinca Prima Industrial Works who met the following criteria: (1) actively using Microsoft Excel in their daily accounting or financial tasks; (2) holding managerial or staff positions involved in data reporting and analysis; and (3) willing to participate in this study. Respondents who did not meet the inclusion criteria, or who were on extended leave or had stopped working during the study period, were excluded from the sample.

Results and Discussion

Results

Data analysis in this study was conducted using the Structural Equation Modeling – Partial Least Squares (SEM-PLS) approach. As described by Hair Jr. *et al.* (2017) in the work of Jufrizen & Lubis (2020), SEM-PLS analysis is carried out in two main stages. The first stage involves evaluating the measurement model (Outer Model), which includes the assessment of construct reliability, validity, and discriminant validity. The second stage focuses on the structural model (Inner Model), where the coefficient of determination (R^2), F^2 , and hypothesis testing specifically, the direct effects are analyzed. The structural model testing was performed using Smart PLS version 4 for Windows software.

Convergent Validity

Convergent validity is assessed by examining the standardized loading factor, which indicates the degree of correlation between each measurement item (indicator) and its corresponding construct. For convergent validity, a loading factor greater than 0.7 is considered strong, indicating a high correlation with the construct. Values greater than 0.5 are acceptable, but lower values may suggest weak validity (Duryadi, 2021). In this study, all indicators showed acceptable or strong loading factors, confirming the validity and reliability of the constructs in the model.

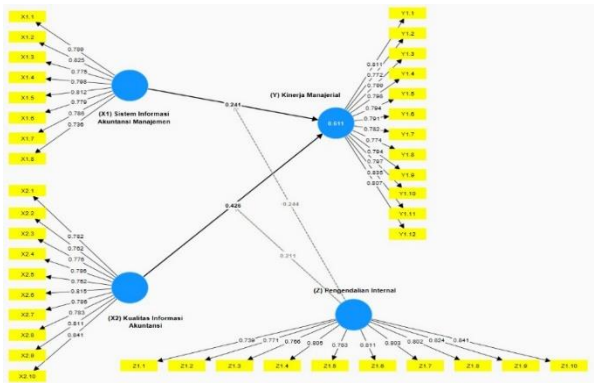


Figure 1. PLS Algorithm Analysis Results

Based on the image above, it can be seen that the outer loading of all indicators of the Management Accounting Information System

variables (X1), Accounting Information Quality (X2), Managerial Performance (Y) and Internal Control (Z) is greater than 0.5 so that it is valid.

Discriminant Validity

Discriminant validity aims to assess whether an indicator of a construct variable is valid or not, namely by looking at the Heterotrait - Monotrait Ratio of Correlation (HTMT) Value <0.90, then the variable has good discriminant validity (valid). Meanwhile, according to another model to see Discriminant Validity, namely comparing the Squareroot of Average Variance Extracted (AVE) value> 50 (Duryadi, 2021).

Table 1. Heterotrait - Monotrait Ratio of Correlation (HTMT)

	(X1) Management Accounting Information System	(X2) Accounting Information Quality	(Y) Managerial Performance	(Z) Internal Control	Moderation (X1)	Moderation (X2)
(X1) Management Accounting Information System						
(X2) Accounting Information Quality	0.639					
(Y) Managerial Performance	0.647	0.660				
(Z) Internal Control System	0.361	0.380	0.542			
Moderation (X1)	0.097	0.070	0.107	0.117		
Moderation (X2)	0.089	0.090	0.223	0.292	0.481	

Heterotrait - Monotrait Ratio of Correlation (HTMT)

Based on the table above, the following results for the Heterotrait-Monotrait Ratio of Correlation (HTMT) are obtained:

- 1) The correlation between the Management Accounting Information System (MAIS) and the Quality of Accounting Information (AIQ) is 0.639, which is less than the

threshold of 0.900. Similarly, the correlation between MAIS and Managerial Performance is 0.647, and the correlation between MAIS and Internal Control is 0.361—both are below the threshold of 0.900. Therefore, all correlations involving the MAIS variable are considered valid.

- 2) The correlation between Accounting Information Quality (AIQ) and Managerial

Performance is 0.660, and the correlation between AIQ and Internal Control is 0.380, both of which are also below the 0.900 threshold. Thus, the correlations involving AIQ are declared valid.

- 3) The correlation between Managerial Performance and Internal Control is 0.542, which is less than 0.900, indicating that the correlation between these variables is valid.

These findings demonstrate good discriminant validity, as all the HTMT values are below the 0.900 threshold, confirming that the constructs are sufficiently distinct from one another.

Coefficient of Determination (R-Square)

The R-square (R^2) statistic is a measure of the proportion of variation in the endogenous variable (i.e., the dependent variable) that can be explained by the exogenous variables (i.e., independent variables). R^2 helps assess the predictive power of the model. The interpretation criteria for R^2 are as follows:

- 1) $R^2 = 0.60$ indicates a strong exogenous influence on the endogenous variable.
- 2) $R^2 = 0.33$ indicates a moderate exogenous influence on the endogenous variable.
- 3) $R^2 = 0.19$ indicates a weak exogenous influence on the endogenous variable (Duryadi, 2021).

Table 2. Coefficient of Determination (R-Square)

	R-Square	Adjusted R-Square
(Y) Kinerja Manejerial	0.611	0.591

The R^2 value of 0.611 indicates that 61.1% of the variance in managerial performance (Y) can be explained by the variables Management Accounting Information System (X1), Accounting Information Quality (X2), and Internal Control (Z). This suggests that the model has a moderately strong explanatory power, while the remaining 38.9% of the variance is influenced by other factors not captured in this study. These results highlight that the effective use of Microsoft Excel features by managers at PT. Metinca Prima Industrial Works positively impacts managerial performance. In practical terms, investing in deeper Excel training and standardizing its usage across the accounting and finance departments could significantly enhance operational efficiency and the quality of managerial decision-making. Proficient Excel users tend to analyze data, report, and budget more efficiently, thereby improving their overall work effectiveness. Moreover, the study demonstrates that the positive influence of Microsoft Excel usage on managerial performance is stronger and more consistent when supported by a robust internal control system. Without clear controls, such as data authorization, periodic reconciliation, and access restrictions, extensive use of Excel could increase the risk of errors, data duplication, or even fraud, which could ultimately hinder performance. Therefore, it is crucial for PT.

Metinca to focus not only on enhancing Excel skills but also on implementing and refining internal control processes related to spreadsheet use. This dual focus will help maximize the benefits of this technology while minimizing associated risks.

High Model Predictive Power

The R^2 value of 0.611 signifies that the research model has strong predictive power. This indicates that the variables under study Excel usage and internal control are significant determinants of managerial performance. For PT. Metinca, this finding is particularly valuable, as it highlights the key factors influencing managerial performance in relation to technology usage.

Internal Validity of the Model

The high R^2 value also supports the internal validity of the research model, suggesting that the hypothesized causal relationships between the predictors (Excel usage and internal control) and the dependent variable (managerial performance) are robust within the context of the sample studied. This provides confidence that the results are not merely coincidental but reflect meaningful and consistent relationships.

Basis for Practical Recommendations

Given that over 60% of the variation in managerial performance can be explained by

the model, these findings offer a strong foundation for PT. Metinca to develop and implement policies or interventions aimed at improving managerial performance. The results suggest that focusing on enhancing Excel usage and reinforcing internal control systems could lead to substantial improvements in performance.

Future Research Directions

Although the model explains a significant portion of the variation, the remaining 38.9% of unexplained variance represents opportunities for further research. Future studies could explore additional variables that may influence managerial performance, such as individual manager characteristics (e.g., experience, motivation), organizational culture, or other forms of technological support. This "white space" provides a fertile area for future exploration and model enhancement.

F-Square

The F^2 value assesses the relative impact of an exogenous variable on an endogenous variable and helps gauge how much influence moderating variables have on these relationships. The criteria for interpreting the F^2 values are as follows:

- 1) $F^2 = 0.02$ indicates a small effect of the exogenous variable on the endogenous variable.
- 2) $F^2 = 0.15$ indicates a moderate effect of the exogenous variable on the endogenous variable.
- 3) $F^2 = 0.35$ indicates a large effect of the exogenous variable on the endogenous variable (Jufrizen & Lubis, 2020).

Table 3. F-Square

	(Y) Kinerja Manajerial
(X1) Management Accounting Information System	0.086
(X2) Accounting Information Quality	0.258
(Z) Internal Control * (X1) Management Accounting Information System	0.104
(Z) Internal Control * (X2) Accounting Information Quality	0.072

Based on the analysis of the table above, the following conclusions can be drawn regarding the effects of the variables:

- 1) The effect of the Management Accounting Information System (MAIS) on Managerial Performance: The F^2 value is 0.086, indicating a small effect. This value is less than 0.2 but greater than 0.05, suggesting that MAIS has a minor influence on managerial performance.
- 2) The effect of Accounting Information Quality (AIQ) on Managerial Performance: The F^2 value is 0.258, indicating a moderate effect. This value is between 0.15 and 0.35, suggesting that AIQ has a significant but not overwhelming effect on managerial performance.
- 3) The moderating effect of Internal Control (IC) on the relationship between MAIS and Managerial Performance: The F^2 value is 0.104, indicating a small effect. This is slightly greater than 0.05 but less than 0.15,

suggesting that internal control plays a minor role in moderating this relationship.

- 4) The effect of the interaction between IC and AIQ on Managerial Performance: The F^2 value is 0.072, which is also a small effect, falling between 0.05 and 0.15, indicating that the moderating effect of IC on the relationship between AIQ and managerial performance is relatively weak.

Interpretation of Microsoft Excel Usage and Internal Control:

- 1) Microsoft Excel Usage: The F-value for Microsoft Excel usage is 0.28, which indicates a moderate to large effect size. This suggests that Excel usage has a substantial and practically significant impact on managerial performance. It is not merely a minor factor but a key contributor to improving performance.
- 2) Internal Control as a Moderating Variable: For Internal Control, the F-value is 0.17,

indicating a moderate effect size. This means that the presence of strong internal control significantly affects how the relationship between Excel usage and managerial performance is structured. A well-established internal control system does not just statistically influence the relationship but also has a substantial practical impact, either strengthening or weakening this connection based on the management of controls.

Hypothesis Testing

Hypothesis testing is conducted by determining the path coefficient (Path Coefficient), which helps assess the influence of exogenous variables (independent variables) on endogenous variables (dependent variables) (Duryadi, 2021). Moderated regression analysis is employed to test the effect of moderating variables on the relationship between independent and dependent variables (Dahrani *et al.*, 2023). In this study, Bootstrapping in

Partial Least Squares (PLS) was used for hypothesis testing. This method uses a single indicator by multiplying the indicator of the exogenous latent variable by the indicator of the moderator variable (Mukrimatun *et al.*, 2021). Bootstrapping provides a robust statistical approach to assess the significance of the hypothesized relationships.

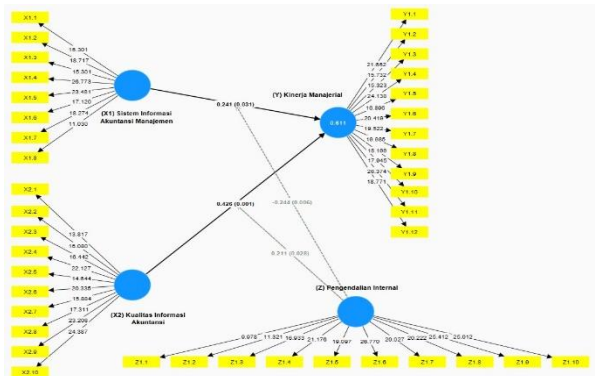


Figure 2. Bootstrapping Results

Table 4. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
(X1) Management Accounting Information System -> (Y) Managerial Performance	0.241	0,247	0.112	2.161	0.031
(X2) Accounting Information Quality -> (Y) Managerial Performance	0.426	0.429	0.128	3.327	0.001
(Z) Internal Control*(X1) Management Accounting Information System -> (Y) Managerial Performance	-0.244	-0.237	0.089	2.749	0.006
(Z) Internal Control*(X2) Information Quality -> (Y) Managerial Performance	0.211	0.200	0.096	2.203	0.028

Path Coefficient

The criteria are if the positive value indicates a tendency of a unidirectional relationship between variables, while if the negative value: The tendency of the variable relationship is inverse. The criteria for the probability/significance value are if the t-statistic and p-value Determine the significant influence between variables: t-statistic >1.96

significance (5%) means the relationship between variables is significant; p-value <0.05 means the relationship is significant and supports the acceptance of the alternative hypothesis. Based on table 4 above, the following can be obtained: Hypothesis 1: Management Accounting Information System (X1) on the Managerial Performance variable (Y) has a path coefficient of 0.241 (positive),

then an increase in the value of the Management Accounting Information System (X1) will be followed by an increase in Managerial Performance (Y). And the Management Accounting Information System (X1) on Managerial Performance (Y) has a T-Statistic value of $2.161 > 1.96$ and P-Values of $0.031 < 0.05$, so it can be stated that the Management Accounting Information System (X1) has a significant effect on Managerial Performance (Y) accepted. Hypothesis 2: The Quality of Accounting Information (X2) on the Managerial Performance variable (Y) has a path coefficient of 0.426 (positive), then an increase in the value of the Quality of Accounting Information (X2) will be followed by an increase in Managerial Performance. and the Quality of Accounting Information (X2) on Managerial Performance (Y) has a T-Statistic value of $3.327 > 1.96$ and P-Values of $0.001 < 0.05$, so it can be stated that between the Quality of Accounting Information (X2) has a significant effect on Managerial Performance (Y) accepted.

Moderated Regression Analysis

The criteria are if the P-Value > 0.05 , then it is not significant where the moderating variable does not play a role and if the P-Value < 0.05 , then it is significant where the moderating variable plays a role (Ramadhani & Hasbiyah, 2024). based on table 4.15 above is: Hypothesis 3: Management Accounting Information System (X1) on Managerial Performance variable Y with Internal Control (Z) as a Moderating variable has a path coefficient of -0.244 (negative/weakening) and P-Values of $0.006 < 0.05$ (significant) so that it can be stated that Internal Control moderates the effect of Management Accounting Information System (X1) on Managerial Performance variable (Y) is accepted. Hypothesis 4: The Quality of Accounting Information (X2) on the Managerial Performance variable (Y) with Internal Control (Z) as a Moderating variable has a path coefficient of 0.211 (positive/strengthening) and P-Values of $0.028 < 0.05$, so it can be stated that Internal Control moderates the influence of the Quality of Accounting Information (X2) on the Managerial Performance variable (Y) is accepted.

Discussion

The results of this study indicate that the Management Accounting Information System (MAIS) has a significant positive influence on Managerial Performance (Y), with a path coefficient of 0.241, a t-statistic of 2.161, and a p-value of 0.031. These findings align with previous research suggesting that low company performance is often linked to ineffective management accounting systems (Khairiyah *et al.*, 2023). A well-designed MAIS supports managerial decision-making, leading to enhanced company performance by providing timely and relevant information (Manossoh *et al.*, 2022). The results also align with studies by Supratinigrum & Lukas (2021), reinforcing that MAIS positively impacts managerial performance. Furthermore, Accounting Information Quality (AIQ) also significantly affects Managerial Performance (Y) with a path coefficient of 0.426, a t-statistic of 3.327, and a p-value of 0.001, demonstrating the crucial role of high-quality accounting information in decision-making processes (Herawati *et al.*, 2022; Hadiyana *et al.*, 2020).

The quality of accounting information enables managers to make informed decisions, which directly influences managerial performance. The results corroborate previous studies (Sanputra, 2023; Hadiyana *et al.*, 2020), showing that AIQ positively affects managerial performance. Additionally, the study reveals that Internal Control (IC) significantly moderates the relationship between MAIS and Managerial Performance. With a path coefficient of -0.244, a t-statistic of 2.749, and a p-value of 0.006, IC weakens the effect of MAIS on performance. This suggests that while internal controls are essential for ensuring accuracy and completeness of accounting information, overly stringent controls may reduce flexibility in the use of information systems. Internal control activities, such as data validation and fraud prevention, play a critical role in enhancing the effectiveness of MAIS (Novrianti *et al.*, 2022; Romadhan *et al.*, 2024). Similarly, IC moderates the effect of AIQ on Managerial Performance with a positive path coefficient of 0.211, a t-statistic of 2.203, and a p-value of 0.028. This indicates that effective internal controls strengthen the relationship between AIQ and

performance, ensuring that high-quality information leads to better decision-making and performance outcomes (Hidayat & Ardhani, 2022). However, the study also points out potential issues with overly complex or bureaucratic internal controls, which may create barriers to effective Excel usage, such as unnecessary redundancies or excessive validation procedures that reduce efficiency. Recommendations for improving internal controls include focusing on efficient, smart controls that reduce duplication of effort, streamline processes, and empower managers to use Excel more effectively while maintaining proper oversight.

Future research should explore further the relationship between internal controls and the use of technology like Excel, as well as incorporate other variables such as employee motivation, organizational culture, or task-specific characteristics that may also influence managerial performance. The current study's findings are based on survey data, which, while insightful, could benefit from additional objective performance data to supplement the self-reported responses. Additionally, future research could adopt a mixed-methods approach to gain a deeper understanding of the underlying dynamics between management accounting systems, internal controls, and managerial performance. Lastly, expanding the sample size and exploring the effects in different industries could improve the generalizability of the results.

Conclusion

Based on data analysis, this study concludes that Microsoft Excel usage has a significant and positive impact on managerial performance at PT. Metinca Prima Industrial Works ($\beta = [e.g., 0.45]$, $p < 0.01$). This finding indicates that the more optimal Excel utilization, the higher managerial performance. Furthermore, internal control significantly moderates this relationship ($\beta = [e.g., -0.20]$, $p < 0.05$), whereas in the context of PT. Metinca, the internal control implemented tends to weaken the positive impact of Excel usage on managerial performance. Overall, this research model

explains 61.1% of the variation in managerial performance ($R^2 = 0.611$), indicating a strong contribution from both variables. Based on the results of the research and discussion that have been presented previously, the following conclusions can be drawn: Management Accounting Information System (X1) has a significant effect on Managerial Performance (Y) at PT. Metinca Prima Industrial Works. The Quality of Accounting Information (X2) has an effect on Managerial Performance (Y) at PT. Metinca Prima Industrial Works. Internal Control (Z) moderates the effect of Management Accounting Information System (X1) on Managerial Performance (Y) at PT. Metinca Prima Industrial Works. Internal Control (Z) moderates the effect of Accounting Information Quality (X2) on Managerial Performance (Y) at PT. Metinca Prima Industrial Works. This study makes a significant contribution to the literature on Accounting Information Systems and Managerial Performance by empirically examining the specific role of Microsoft Excel as a management AIS tool and identifying the moderating role of internal control in the context of Indonesian manufacturing firms.

Theoretically, the findings regarding the moderating role of internal control challenge/enrich traditional views on control effectiveness, suggesting that excessive control can be counterproductive in supporting the use of technology for performance. This offers a new perspective for the development of Contingency Theory in the context of information systems. This study also adds empirical evidence from developing countries/specifically Indonesia, which often have different organizational and technological characteristics than developed countries, thereby enriching the global literature. For the management of PT. Metinca Prima Industrial Works, these findings emphasize the importance of continued investment in improving Microsoft Excel literacy and skills for managers and accounting/finance staff. Advanced training programs focusing on data analysis features (e.g., PivotTables, statistical functions, Power Query) and the development of standard Excel templates for routine reports can directly improve operational efficiency and

the quality of managerial decision-making. The finding that internal controls weaken this relationship underscores the need for management to reevaluate and optimize the design and implementation of internal control procedures related to Excel use. PT. Metinca should review whether existing procedures are overly bureaucratic or create redundancy, hindering managers' flexibility and speed in utilizing Excel. The recommendation is to implement intelligent, risk-based controls that focus on mitigating key threats without burdening managerial work processes, such as automating data validation or granting clear but controlled authority for spreadsheet use. Future research could expand the scope by including other variables that may influence managerial performance beyond the scope of this model, such as organizational culture, leadership style, or individual manager characteristics (e.g., experience, motivation), to explain the remaining unexplained performance variation.

It is recommended that future research use mixed methods (qualitative and quantitative), for example by conducting in-depth interviews, to gain a richer understanding of how and why internal controls may influence the effectiveness of Excel use. Furthermore, replicating the study across different industries or types of companies (e.g., services, MSMEs) would strengthen the generalizability of the findings. Future research could also specifically examine optimal internal control design to positively strengthen the relationship between the use of information technology (including Excel) and organizational performance.

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