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Optimizing Internal Control Systems in Public Sector: The Influence of Management Support and Internal Audit Effectiveness

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ABSTRACT

The effectiveness of internal control systems (ICS) in the Malaysian public sector is crucial for safeguarding assets, ensuring reliable financial reporting, and promoting compliance with regulations. This study examines the direct and moderating effects of management support and internal audit effectiveness on the strength of ICS in Malaysian public sector organizations. Despite extensive theoretical support for the importance of both factors, empirical evidence on their interaction in this context remains limited. Using a quantitative approach, data were collected via a survey from 60 valid respondents across seven ministries, seven statutory bodies, and 20 government agencies. Structural equation modelling (SEM) was employed to analyse the relationships between management support, internal audit effectiveness, and ICS. The findings reveal that management support has a positive and significant direct relationship with ICS. Additionally, the effectiveness of internal audits enhances this relationship, suggesting a moderating effect. Specifically, the impact of management support on ICS is amplified when internal audit functions are more effective. This study contributes to the understanding of how management and audit functions jointly influence ICS strength in the public sector. The results provide practical implications for policymakers, highlighting the importance of strengthening both leadership commitment and audit practices to improve the internal control frameworks in public sector organizations. This study also adds to the existing literature by providing empirical evidence on the interaction between management support and internal audit effectiveness in a unique governance context.

Keywords: internal control; management support; internal audit; public sector, Resource-Based View (RBV) theory

INTRODUCTION

A robust internal control system is essential for safeguarding assets, ensuring reliable financial reporting, and promoting compliance with laws and regulations. However, the effectiveness of such systems largely depends on two critical factors: management support and the effectiveness of internal audit functions (Barišić & Tušek, 2016; Abdelrahim & Al-Malkawi, 2022; Bame-Aldred et al., 2019; Sudirman et al., 2021). Despite the vital role these elements play, their combined influence on the internal control system, particularly in the Malaysian public sector, remains underexplored.

Malaysia has made notable progress in strengthening public sector governance; however, weaknesses in internal control systems continue to be highlighted in the Auditor General's reports and reinforced by the findings of the Public Accounts Committee (PAC). These recurring issues underscore the need for a closer examination of how internal control mechanisms are both supported and monitored. In this context, management support is vital for fostering accountability and ensuring adequate resources for internal control activities (Gökoğlan et al., 2022), while internal audit functions play a central role in evaluating compliance, safeguarding assets, and preventing

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fraud (Bame-Aldred et al., 2019; Sudirman et al., 2021). Together, these two elements form critical pillars in reinforcing internal control frameworks within the Malaysian public sector.

Although the importance of management support and internal audit effectiveness in strengthening internal control systems is well established in theory, empirical evidence on their interaction and combined influence remains limited, particularly within the Malaysian public sector. This gap in understanding creates uncertainty about how these factors work together in practice to design effective strategies for optimizing internal controls in public organizations.

The literature affirms that both management support and internal audit effectiveness are vital to the effectiveness of internal control system. However, most studies either examine them in isolation or focus on private sector contexts. Empirical evidence on their combined effect within the Malaysian public sector, particularly in a setting characterized by unique governance, political, and administrative dynamics, remains limited. Given the persistent internal control system weaknesses reported by Malaysia's Auditor General and PAC, this study seeks to fill this gap by investigating the individual and joint influence of management support and internal audit effectiveness on the strength of internal control system in Malaysian public sector organizations.

Recent findings from Public Accounts Committee (PAC) reports and governance assessments emphasize that the level of management involvement is crucial in determining the strength of internal control systems (Motubatse et al., 2015; Barišić and Tušek, 2016; Abdelrahim and Al-Malkawi, 2022). However, whether the effectiveness of internal audit functions reinforces or undermines this influence is still an unresolved question. These insights underscore the need to explore how management support and internal audit effectiveness interact, as understanding this dynamic is key to better grasping how both factors shape internal control outcomes in practice.

This study seeks to examine both the individual and interactive effects of management support and internal audit effectiveness on the strength of internal control systems in Malaysian public sector organizations. The goal is to provide empirical evidence that can inform strategies for strengthening internal control systems by focusing on targeted improvements in leadership commitment and audit practices.

This study adopts a quantitative approach to explore the roles of management support and internal audit effectiveness in enhancing internal control systems within Malaysian public sector organizations. Survey data were collected from personnel involved in internal control and audit functions and analysed using structural equation modelling. The findings reveal that management support plays a key role in strengthening internal controls, with its impact amplified when internal audit functions are more effective. Additionally, internal audit effectiveness alone also contributes positively to internal control systems, and it moderates the relationship between management support and internal controls, indicating an interdependent relationship.

LITERATURE REVIEW

Internal Control Systems (ICS) are established to safeguard organizational assets, ensure the reliability of financial and operational reporting, and promote regulatory compliance. Conceptual mapping derived from Scopus AI (2025) identifies three principal components of ICS, namely Risk Management (RM), Internal Audit Effectiveness (IAE), and Management Support (MS). While RM is closely associated with quality management and organizational learning, this study concentrates on IAE and MS, which the literature consistently highlights as critical determinants in optimizing the effectiveness of ICS (see Figure 1).

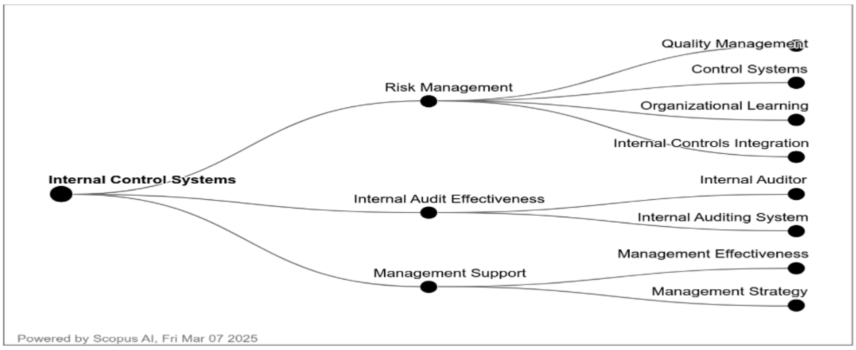

Figure 1: Conceptual Mapping of Internal Control Systems

(Source: Scopus AI, 2025)

Management Support and Internal Control Systems

A recurring theme in the literature is that management support (MS) creates the foundation for effective internal controls. Motubatse et al. (2015) highlight that managerial backing ensures audit recommendations are implemented, while Barišić and Tušek (2016) demonstrate that supportive leadership establishes a conducive control environment. Similarly, Abdelrahim and Al-Malkawi (2022) argue that without strong MS, internal audits cannot effectively assess or enhance ICS.

Empirical findings reinforce these arguments. For instance, Gökoğlan, Bilen, and Güneş (2022) found a positive and significant relationship between senior management support and the effectiveness of public internal controls in Turkey. Their results show that management's role in allocating resources, motivating staff, and providing training directly contributes to stronger ICS. This aligns with Feng, Li, and McVay (2009), who caution that weak internal controls constrain strategic decision-making in areas such as R&D, capital investments, and workforce expansion. Collectively, these studies confirm that management involvement is not merely supportive but essential for a strong ICS environment. Building on the theoretical framework and prior research evidence, this study proposes the following hypothesis:

H1: There is a positive relationship between management support and the effectiveness of internal control systems in the public sector.

Internal Audit Effectiveness and Internal Control Systems

Alongside MS, internal audit effectiveness (IAE) has been consistently identified as a key determinant of ICS. Effective audits ensure that risks are properly assessed, and controls adequately monitored. Chopset and Ussahawanitchakit (2013) argue that risk-based audit planning strengthens control systems, while Sudirman et al. (2021) show how internal audit functions contribute to fraud prevention through monitoring and reporting mechanisms.

Recent empirical studies provide further nuance. Alqudah et al. (2023) demonstrate that auditor competence, independence, and support from management significantly enhance IAE, thereby improving ICS. Likewise, Bame-Aldred et al. (2019) find that organizations with larger audit teams, more certified staff, and experienced auditors achieve better control systems. Interestingly, their results show that while auditor competence improves compliance-related controls, its effect on operational controls is less clear, highlighting the multi-dimensional role of audits.

In the public sector, Gökoğlan et al. (2022) report a strong relationship between effective public audit systems and ICS effectiveness. Their findings emphasize that competent auditors not only strengthen financial reporting but also improve operational efficiency and compliance with regulations. Together, these studies underscore that audit quality and independence are central to the robustness of internal controls. Building upon the prior research evidence discussed above, this study posits the following hypothesis:

H2: There is a positive association between the effectiveness of internal audit and the effectiveness of internal control systems within the public sector.

Moderating Effect of Internal Audit Effectiveness on the Relationship Between Management Support and Internal Control Systems

While MS and IAE independently contribute to ICS, growing research highlights their interdependent relationship. Abdelrahim and Al-Malkawi (2022) propose that MS serves as a critical enabler of IAE, amplifying its impact on ICS. Similarly, Alqudah et al. (2023) find that without sufficient MS, auditors struggle to maintain independence and implement audit findings. This interdependence is echoed by Gökoğlan et al. (2022), who show that ICS effectiveness is maximized when both management support and strong internal audits coexist.

Beyond operational benefits, strong ICS also strengthens public accountability. Bonsu et al. (2023) provide evidence that internal controls positively and significantly impact accountability in public institutions, particularly when coupled with leadership integrity and ethical practices. This is highly relevant in the Malaysian context, where recurring issues in Auditor General and Public Accounts Committee (PAC) reports often point to accountability lapses linked to weak internal controls. Strengthening ICS through MS and IAE therefore has implications not only for organizational efficiency but also for restoring public trust in governance. These findings suggest that the two factors should not be studied in isolation but rather as complementary forces shaping ICS strength. Accordingly, the study proposes the following hypothesis:

H3: Internal audit effectiveness positively moderates the relationship between management support and the effectiveness of internal control systems in the public sector.

The Resource-Based View (RBV) theory positions management support, and internal audit effectiveness as strategic resources that enhance public sector accountability and performance. From the RBV lens, effective controls and audits can be considered valuable, rare, inimitable, and non-substitutable, giving the organization a sustained advantage in governance and legitimacy. Management support acts as an enabling resource, providing funding, human capital, and organizational culture that shape the success of internal controls. Likewise, an independent and competent internal audit function serves as a specialized capability that ensures resources are safeguarded and risks minimized.

In contrast, Control Theory provides a more process-oriented perspective. It explains how organizations align behavior and performance with objectives through monitoring, feedback, and corrective action. Internal controls represent the formal control mechanisms, while management support provides reinforcement by ensuring compliance and accountability are prioritized. Internal audit plays a critical feedback role, identifying deviations and recommending corrective actions, thus closing the control loop. Unlike RBV, Control Theory is less concerned with the uniqueness of resources and more focused on the continuous regulation and adaptation of organizational processes. Yet, a critique of Control Theory is that it often assumes rational compliance with feedback, while in practice, public sector environments are influenced by politics, resistance, and resource constraints that may dilute corrective action.

Taken together, RBV and Control Theory complement each other: RBV underscores *why* management support and internal audit effectiveness are essential strategic resources for optimizing internal controls, while Control Theory demonstrates *how* these elements interact within a feedback system to ensure controls are enforced, monitored, and adapted. A critical synthesis suggests that while RBV highlights the value of internal capacities, Control Theory addresses their operationalization, making both theories jointly suitable for analyzing internal control optimization in the public sector.

METHODOLOGY

Design and Sampling

This study used a simple random sampling method. A questionnaire, designed via Google Forms and was distributed via email to internal audit units in various public sector organizations, with email addresses randomly selected from official websites. The target respondents were the heads of internal audit and their teams, responsible for assessing the adequacy of internal control systems. The Malaysian public sector operates at federal, state, and local levels, with statutory bodies functioning as federal or state agencies established by legislation.

The study received responses from seven (7) ministries, seven (7) statutory bodies, and 20 government agencies. Of the 119 questionnaires distributed via email, 76 responses were initially received. However, 16 responses were excluded due to incomplete information, leaving 60 valid questionnaires for analysis. This yielded a response rate of 58.25%, as shown in Table 1. The highest response rate came from Government Agencies (53.95%, 41 respondents), followed by Ministries/Departments (23.68%, 18 respondents) and Statutory Bodies/Local Authorities (22.37%, 17 respondents). These responses reflect various levels of Malaysia's public sector, allowing the findings to be generalized to internal audit units (IAUs) nationwide.

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Table 1: Respondent Information by Organization Category

Level	Total Government Agencies	Organizations with Internal Audit Units (IAUs)	Respondents	Response Percentage
Ministries/Departments (Federal)	7	7	18	23.68%
Statutory Bodies/ Local Authorities	7	7	17	22.37%
Government Agencies	20	20	41	53.95%
Total	34	34	76	100.00%

In line with previous studies (Baharud-din et al., 2014; Karagiorgos et al., 2011; Ninlaphay et al., 2012; Sawalqa and Qtish, 2012), this study utilized a close-ended questionnaire to facilitate efficient response processing and comparison. The questionnaire was organized into four sections:

Section A: Effectiveness of internal control systems.

Section B: Management support.

Section C: Effectiveness of internal audits.

Section D: Respondent demographic information.

Table 2 will provide a detailed breakdown of the respondent information for each organizational category used in this study. The respondents in this study comprised heads of internal audit and teams directly involved in auditing activities within the public sector, including Ministries/Departments (Federal), Statutory Bodies, Local Authorities, and Government Agencies. Most organizations have relatively small Internal Audit Unit (IAU) teams. Feedback from respondents indicates that the heads of IAUs often distribute the questionnaires to their audit team members. This approach is reasonable, as the team members are directly involved in the auditing process and must adhere to the guidelines set by the National Audit Department (JAN). However, a portion of respondents chose not to disclose their job grades, leaving these fields blank. This resulted in 21% of the responses being categorized as "Unknown."

Table 2: Respondents by Job Grade

Job Grade	Number of Respondents	Response Percentage
Administrative Assistant/Assistant Officer	14	18%
Executive/Officer	15	20%
Deputy Director/Auditor	29	38%
Head of Internal Audit	2	3%
Unknown	16	21%
Total	76	100%

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Measurement of Variables

Respondents' perceptions of management support, internal audit effectiveness, and internal control systems (ICS) were measured using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). The questionnaire developed by Jaffar et al. (2022), which aligns with the public sector internal audit context in Malaysia, was considered suitable for this study. Jaffar et al. (2022) defines management support as the positive response from management to audit findings and their commitment to enhancing internal audit functions. Internal audit effectiveness was evaluated based on the achievement of audit objectives aligned with the organization's overall goals. The study used a survey instrument derived from Cohen and Sayag (2010) and Cristina and Cristina (2009), incorporating 38 items on aspects such as audit plan implementation, timeliness of report issuance, resolution of audit findings, auditor qualifications, completion of ancillary activities, and evaluations by management and auditees.

ICS effectiveness was measured according to the INTOSAI (2004) Guidelines for Internal Control Standards for the Public Sector, integrating five key components into the evaluation framework. Measurement items for ICS were drawn from Amudo and Inanga (2009), Karagiorgos et al. (2011), and Sawalqa and Qtish (2012). The study also controlled for internal audit department size, based on its established relationship with audit effectiveness (DeAngelo, 1981; Ali et al., 2012), measuring size using the natural logarithmic ratio of internal audit staff to total staff in the organization.

Data Cleaning Analysis

The validity of the data was confirmed through factor analysis, which grouped questionnaire items into specific constructs based on key criteria outlined by Hair et al. (2013). Items with factor loadings exceeding 0.4, cross-loadings below 0.4, and communalities greater than 0.3 were retained. Any items failing these criteria were excluded and the analysis repeated. Separate factor analyses were conducted for each variable to ensure construct robustness and reliability. For the effectiveness of ICS, the factor loadings for all 18 items exceeded 0.5, with no cross-loadings observed. Similarly, for management support and internal audit effectiveness, all items met the criteria, and the factor loadings exceeded 0.5 with no cross-loadings. The Cronbach's Alpha values for all variables were above 0.9, indicating excellent internal consistency. These results demonstrate the strong validity and reliability of the questionnaire items.

Table 3: Factor Loading and Cronbach's Alpha Values

Variable	Number of Items	Factor Loading Range	Cronbach's Alpha
Effectiveness of ICS	18	0.731–0.938	0.954
Management Support	6	0.991–1.000	0.906
Internal Audit Effectiveness	14	0.886–0.998	0.951
Total	38		

The correlation analysis showed strong relationships between the variables and their respective items. The effectiveness of the ICS had correlations above 0.55 (18 items), management support exceeded 0.717 (6 items), and internal audit effectiveness exceeded 0.636 (14 items). These high correlations confirm that the items accurately measure their respective variables, in line with Hair et al. (2013), who consider correlations above 0.40 as having high validity. The correlation values between the variables were found to be less than 0.7, indicating that there is no significant multicollinearity issue present in the data. This suggests that the variables are not highly correlated with each other and can be included in the regression analysis without concern for multicollinearity.

Data normality was tested using z-scores for skewness and kurtosis. The z-score for kurtosis in internal audit effectiveness exceeded 2.58, indicating non-normal distribution. To address this, outliers identified in the boxplot were removed, as recommended by Coakes and Steed (2007). Other variables showed z-scores below 2.58, indicating normal distribution.

Table 4: Data Normality Analysis

Variable	Skewness	Std Error	Z Value (Skewness)	Kurtosis	Std Error	Z Value (Kurtosis)
Effectiveness of ICS	-0.826	0.276	-2.998	1.087	0.545	1.996
Management Support	-0.497	0.276	-1.803	-0.203	0.545	-0.373
Internal Audit Effectiveness	-0.241	0.276	-0.874	-0.687	0.545	-1.261

Based on the mean centrality test, the multiple regression analysis model is formulated as follows:

$$ICS = \beta_0 + \beta_1 MS + \beta_2 IAE + \beta_3 MS * IAE + \beta_4 IASize + \varepsilon$$

Where:

ICS = Internal control system

IAE = internal audit effectiveness

MS = management support

IASize = Size internal audit department

RESULTS AND DISCUSSION

Descriptive Statistics.

Table 5 presents the descriptive statistics for the independent variables. Based on the table, the mean for internal audit effectiveness is 4.99, while the mean for management support is 4.39. This indicates that public sector organizations in Malaysia place greater emphasis on management support than on the effectiveness of internal audit. On average, internal audit effectiveness is rated highly at 4.99, reflecting a high level of effectiveness within public sector agencies. Similarly, management support is rated 4.39, suggesting a strong level of support for the implementation of internal audit activities.

Table 5: Descriptive Analysis

Variable	Minimum	Maximum	Mean (Average)	Standard Deviation
Internal Audit Effectiveness	1.56	7.00	4.99	1.23
Management Support	1.00	7.00	4.39	1.39

Regression Results

The regression analysis presented in Table 6 provides important insights into the relationships between management support (MS), internal audit effectiveness (IAE), and the internal control system (ICS). In Model 1, the results show that MS has a positive and highly significant effect on ICS ($\beta = 0.503$, $p < 0.01$). This finding

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suggests that management commitment, in terms of allocating resources, providing oversight, and reinforcing compliance, directly contributes to the strength of internal control systems.

However, when IAE and the interaction term (MS × IAE) are introduced in Model 2, the effect of MS becomes non-significant ($\beta = 0.151$, ns). This shift indicates that the influence of MS on ICS is not straightforward but rather depends on the presence of effective internal audits. In other words, management support alone is insufficient; its impact weakens unless supported by audit mechanisms that can translate managerial intentions into practical control improvements. This finding underscores the importance of considering interaction effects when examining governance variables. From the perspective of control theory, managerial oversight requires a feedback mechanism such as internal audits to ensure that policies and strategies are effectively implemented.

The role of IAE itself also becomes clearer in Model 2. While the direct effect of IAE on ICS is non-significant in Model 1 ($\beta = 0.061$), it turns positive and marginally significant in Model 2 ($\beta = 0.366$, $p < 0.10$). This result suggests that audit effectiveness does not operate independently but gains explanatory power when considered alongside management support. Effective internal audits appear to validate and reinforce management's initiatives, ensuring that policies and procedures are consistently implemented and monitored.

The interaction effect between MS and IAE in Model 2 ($\beta = 0.079$, $p < 0.10$) provides further evidence of this complementary relationship. The significant interaction indicates that the positive influence of management support on ICS is amplified when internal audits are more effective. Conversely, when audit effectiveness is weak, the contribution of management support is substantially diminished. This result aligns with the notion of control synergy, where governance (management oversight) and assurance (audit effectiveness) must operate together to strengthen internal control systems. From a resource-based view (RBV), this finding suggests that combining management commitment with audit capability creates unique organizational resources that enhance internal control effectiveness.

In contrast, the findings reveal that internal audit size is not a significant predictor of ICS in either model ($\beta = -0.012$ in Model 1; $\beta = -0.015$ in Model 2). This suggests that simply increasing the number of internal auditors does not necessarily enhance control effectiveness. Instead, the quality, independence, and authority of the audit function appear to be more critical determinants of ICS than the size of the audit team.

Overall, the results highlight that while management support is an essential driver of internal control systems, its effect is conditional on the effectiveness of the internal audit function. The findings stress that internal controls are most robust when managerial commitment is complemented by a competent and effective audit team. The insignificant role of audit size reinforces the argument that quality and capability, rather than quantity, are central to strengthening control environments.

Table 6: Regression results

Dependent Variable-Internal Control System		
	(1)	(2)
Intercept	3.170***	4.507***
	(7.880)	(5.317)
Management Support (MS)	0.503***	0.151
	(5.782)	(0.703)
Internal Audit Effectiveness (IAE)	0.061	0.366*
	(0.707)	(1.917)

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Management Support (MS) * Internal Audit Effectiveness (IAE)		0.079*
		(1.784)
Internal Audit Size	-0.012	-0.015
	(-1.279)	(-1.575)
R2	0.3451	0.3732
Adj.R2	0.3179	0.3379
N	76	76
F-stat	12.649	10.570
Prob>F	0.0000	0.0000

t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01:

Where:

ICS = Internal control system

IAE = internal audit effectiveness

MS = management support

IASize = Size internal audit department

CONCLUSION AND RECOMMENDATIONS

This study provides valuable insights into the role of management support and internal audit effectiveness in strengthening internal control systems (ICS) within the Malaysian public sector. The findings demonstrate that both management support and internal audit effectiveness independently contribute to the effectiveness of ICS. Notably, management support has a significant and positive direct effect on ICS strength, which is further enhanced by the effectiveness of internal audit functions.

The interaction between these two factors suggests that their combined influence is greater than the sum of their individual effects, with internal audit effectiveness acting as a moderator that amplifies the impact of management support on ICS. This finding is consistent with control theory, which emphasizes that managerial oversight requires monitoring and feedback mechanisms to be effective. In this context, internal audits serve as the feedback channel that translates management commitment into practical control improvements.

The results also resonate with the resource-based view (RBV), as the combination of strong management support and effective internal audit functions represents a valuable and unique organizational capability. When integrated, these resources provide a synergistic advantage that enhances the robustness of internal control systems, offering a sustainable means of improving governance and accountability in the public sector.

These results have important practical implications for public sector organizations and policymakers in Malaysia. To strengthen internal control frameworks, it is essential for public sector organizations to foster a culture of strong management support, while simultaneously ensuring the effectiveness of internal audit functions. This could involve providing adequate resources for internal audits, aligning audit practices with organizational goals, and ensuring that management is actively engaged in addressing audit findings and recommendations. The study's empirical contributions fill a significant gap in the literature by offering new evidence on the dynamic interplay between management support and internal audit effectiveness, particularly in the unique governance context of Malaysia.

Future research could further explore the impact of other organizational and contextual factors on the effectiveness of ICS, extending the scope of this study to other public sector contexts or even comparing findings across different countries. Additionally, longitudinal studies could help in understanding how changes in management support or audit effectiveness over time influence the robustness of internal control systems.

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