

INTERNAL AUDIT FUNCTION AND MODIFIED AUDIT OPINION: EMPIRICAL EVIDENCE FROM EMERGING MARKET

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Received 26.03.2026.

| Sent to review 15.04.2026. | Accepted 19.08.2026.

Original article



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JEL Classification:
G32, G34, M4, M40, M42, M49

Doi: 10.2478/eoik-2026-0060

UDK: 339.138(100):336.71.078.3

ABSTRACT

This study investigates how the internal audit function, particularly its sourcing arrangements and the level of investment allocated to it, influences the likelihood of a firm receiving a modified audit opinion. As a key component of an organization's internal corporate governance and monitoring framework, the internal audit function plays an important role in supporting the quality and reliability of external financial reporting. The study analyses 132 firm-year observations from companies across seven sectors listed on the Main Market and ACE Market of Bursa Malaysia between 2009 and 2011. A logistic regression model with a matched-pairs sample design is employed to examine the relationship between internal audit characteristics and the probability of receiving a modified audit opinion. The findings suggest that greater investment in the internal audit function strengthens its monitoring effectiveness and reduces the likelihood of a modified audit opinion. These results are consistent with the Bursa Malaysia Corporate Governance Guide (2009) and the Malaysian Code on Corporate Governance (2007), both of which recognize internal auditing as a fundamental pillar of effective corporate governance and reliable financial reporting. By exploring the influence of internal audit sourcing arrangements and investment on modified audit opinions in the context of Malaysia, this study extends the existing literature on audit quality and corporate governance while providing empirical evidence from an emerging Asian economy.

Keywords: *Internal audit function, modified audit opinion, financial reporting quality, Malaysia*

1. INTRODUCTION

A modified audit opinion is generally viewed as an indication of deficiencies in a firm's financial reporting and may influence the decisions of investors and other stakeholders. Consequently, organizations are increasingly expected to strengthen their corporate governance mechanisms to enhance financial reporting quality and reduce the likelihood of receiving a modified audit opinion. Effective corporate governance provides oversight of the financial reporting process, improves the reliability of financial information, and helps mitigate agency conflicts arising from information asymmetry between managers and shareholders. Prior research has extensively examined the relationship between modified audit opinions and various

corporate governance mechanisms, including ownership structure, board characteristics, and audit committee effectiveness. However, despite the growing recognition of internal auditing as an essential element of corporate governance, limited attention has been given to its role in influencing external audit outcomes, particularly the likelihood of receiving a modified audit opinion. The internal audit function has evolved from a traditional compliance-oriented role into a strategic governance mechanism that supports risk management, internal control, and financial reporting quality. An effective internal audit function provides independent assurance regarding the adequacy of internal controls and contributes to the reliability of financial reporting. Consequently, organizations that invest sufficient resources in internal auditing may strengthen their internal monitoring systems and reduce the risk of material misstatements that could lead to a modified audit opinion. In Malaysia, the importance of internal auditing has been reinforced through the Malaysian Code on Corporate Governance and the Bursa Malaysia Corporate Governance Guide, both of which recognize internal auditing as a fundamental component of sound corporate governance. Listed companies are also required to disclose information regarding their internal audit arrangements and the resources allocated to the function. These regulatory developments make Malaysia an appropriate setting for examining whether characteristics of the internal audit function influence external audit outcomes. Although previous studies have linked internal auditing to lower earnings management, reduced financial reporting fraud, and improved reporting quality, evidence regarding its association with modified audit opinions remains scarce. Little is known about whether the sourcing arrangement of the internal audit function or the level of investment devoted to internal auditing affects the probability of receiving a modified audit opinion. Addressing this gap contributes to a better understanding of how internal governance mechanisms influence external audit assessments. This study investigates whether internal audit sourcing arrangements and investment in the internal audit function affect the likelihood of receiving a modified audit opinion among Malaysian listed companies. Using 132 firm-year observations from companies listed on the Main Market and ACE Market of Bursa Malaysia between 2009 and 2011, the study employs logistic regression to examine these relationships. The findings indicate that greater investment in the internal audit function is associated with a lower likelihood of receiving a modified audit opinion, while no significant relationship is observed for internal audit sourcing arrangements. These results suggest that allocating adequate resources to internal auditing strengthens internal monitoring and contributes to higher-quality financial reporting. This study makes three principal contributions. First, it extends the literature by examining the relationship between internal audit characteristics and modified audit opinions, an area that has received limited empirical attention. Second, it distinguishes between investment in the internal audit function and sourcing arrangements, thereby providing a more comprehensive assessment of internal audit effectiveness. Third, it offers evidence from an emerging market where corporate governance reforms have placed increasing emphasis on internal auditing as a mechanism for improving financial reporting quality. The study is grounded in agency theory, which suggests that effective monitoring mechanisms reduce information asymmetry and agency conflicts between managers and shareholders. It also draws on the resource-based view, which argues that organizations investing in valuable internal capabilities, such as a well-resourced internal audit function, are better positioned to enhance governance and financial reporting quality. Collectively, these theoretical perspectives suggest that greater investment in internal auditing should strengthen monitoring effectiveness and reduce the likelihood of modified audit opinions.

2. REVIEW OF LITERATURE

External audit opinions provide an important signal regarding the credibility of a firm's financial reporting. An unmodified audit opinion offers reasonable assurance that the financial statements fairly represent the company's financial position, whereas a modified audit opinion indicates deficiencies that may affect the reliability of reported information. Consequently, modified audit opinions are commonly regarded as indicators of lower financial reporting quality (Chen et al., 2001; Pucheta-Martínez & de Fuentes, 2007; Farinha & Viana, 2009, Fitrianti et al., 2026).

Agency theory suggests that effective corporate governance mechanisms reduce information asymmetry between managers and shareholders and improve the quality of financial reporting. Consistent with this view, prior studies have shown that stronger governance structures including board independence, audit committee effectiveness, and ownership characteristics reduce the likelihood of receiving a modified audit opinion (Sánchez-Ballesta & García-Meca, 2005; Firth et al., 2007; Rusmin et al., 2009; Farinha & Viana, 2009; Matonti et al., 2024; Khan & Kamal, 2024; Rustemova et al., 2026). Evidence from Australia, Portugal, Spain, and China consistently indicates that firms with stronger governance practices are less likely to receive modified audit opinions.

Despite the extensive literature on boards, audit committees, and ownership structure, relatively little attention has been devoted to the internal audit function. This represents an important omission because internal auditing constitutes one of the primary internal monitoring mechanisms within a firm's governance framework. Professional and regulatory bodies, including the Institute of Internal Auditors (IIA), the Securities and Exchange Commission (SEC), the Public Company Accounting Oversight Board (PCAOB), the Malaysian Code on Corporate Governance, and Bursa Malaysia, recognize internal auditing as a critical component of effective corporate governance and reliable financial reporting.

Previous studies suggest that an effective internal audit function enhances internal controls, strengthens risk management, and improves financial reporting quality (Coram et al., 2008; Prawitt et al., 2009; Ho & Hutchinson, 2010; Gras-Gil et al., 2012; Mohamed et al., 2012; Mohamed, 2013; Ivanova Koleva, 2025). However, empirical evidence examining whether these improvements translate into a lower probability of receiving a modified audit opinion remains limited.

Internal Audit Sourcing Arrangements

Organizations may perform internal auditing through an in-house department or outsource the function to an external service provider. Each arrangement offers distinct advantages and disadvantages in terms of expertise, independence, cost, and organizational knowledge (Carcello et al., 2005; Desai et al., 2011). Consequently, the sourcing arrangement may influence the effectiveness of internal monitoring and, ultimately, financial reporting quality.

The existing literature provides mixed evidence regarding the effectiveness of different sourcing arrangements. Prawitt et al. (2012) report that outsourcing internal auditing to the external auditor is associated with lower accounting risk, whereas Johl et al. (2013) document a positive association between outsourced internal auditing and earnings management among Malaysian firms. Overall, previous findings remain inconclusive, and no prior study has directly examined whether internal audit sourcing arrangements affect the likelihood of receiving a modified audit opinion.

The Malaysian setting provides an interesting context for examining this relationship. Bursa Malaysia does not prescribe a preferred sourcing arrangement, instead recognizing both in-house and outsourced internal audit functions as acceptable alternatives. Moreover, concentrated ownership structures and the regulatory environment may reduce potential differences

in monitoring effectiveness between sourcing arrangements. These institutional characteristics suggest that the relationship between sourcing arrangements and audit opinions remains an empirical question.

Accordingly, this study proposes the following non-directional hypothesis:

H₁: There is an association between internal audit sourcing arrangements and the likelihood of receiving a modified audit opinion.

Investment in the Internal Audit Function

The effectiveness of the internal audit function depends not only on its organizational structure but also on the resources allocated to it. Greater investment enables the function to recruit qualified personnel, expand audit coverage, improve monitoring activities, and strengthen internal controls. Consequently, well-resourced internal audit departments are expected to detect financial reporting problems more effectively and reduce agency costs.

Prior research supports this argument. Prawitt et al. (2009) find that greater investment in internal auditing improves monitoring quality and reduces earnings management. Similarly, Prawitt et al. (2012) report that higher-quality internal audit functions are associated with lower accounting risk, while Johl et al. (2013) document a negative relationship between internal audit investment and abnormal accruals among Malaysian firms. Collectively, these findings suggest that investment in internal auditing enhances financial reporting quality.

Under Bursa Malaysia's Corporate Governance Guide, listed companies are required to disclose the costs incurred for their internal audit function, reflecting the importance placed on adequate resourcing. Despite this regulatory emphasis, little empirical evidence exists on whether investment in internal auditing influences the probability of receiving a modified audit opinion. Addressing this gap extends the literature by examining whether investment in the internal audit function improves external audit outcomes.

Accordingly, the following hypothesis is proposed:

H₂: Investment in the internal audit function is negatively associated with the likelihood of receiving a modified audit opinion.

3. METHODOLOGY

3. 1. DATA COLLECTION AND SAMPLE DESCRIPTION

The data used in this study were obtained from two primary sources: annual reports and DataStream. Financial data were collected from DataStream, whereas information on corporate governance variables was manually extracted from the annual reports of publicly listed companies. Annual reports were obtained from the Bursa Malaysia website (www.bursamalaysia.com.my). All relevant data were collected for the 2009–2011 period.

The sample comprises publicly listed non-financial firms on the Main Market and ACE Market of Bursa Malaysia that received a modified audit opinion between 2009 and 2011. These firms constitute the test sample. To facilitate comparison, each firm receiving a modified audit opinion was matched with a firm that received an unmodified audit opinion during the same period. The control firms were selected using a matched-pairs research design based on fiscal year, industry classification, market segment (Main or ACE Market), and the closest total asset size. This matched-pairs approach has been widely adopted in prior auditing and corporate governance studies (Farrell & Whidbee, 2002; Sánchez-Ballesta & García-Meca, 2005; Abidin, 2006; Schiehl, 2006; Johl et al., 2007).

Financial institutions were excluded because they operate under industry-specific regulations and governance requirements that differ from those applicable to non-financial listed firms. This exclusion is consistent with prior research (Sánchez-Ballesta & García-Meca, 2005; Chu & Cheah, 2006; Yatim et al., 2006; Farinha & Viana, 2009).

The final sample consists of 132 firm-year observations representing 96 companies across seven industry sectors. Although the sample period predates the present by more than a decade, it remains appropriate for this study. The 2009-2011 period captures the post-global financial crisis environment, during which corporate governance and financial reporting received heightened regulatory and market scrutiny. Consequently, examining auditor reporting decisions during this period provides valuable insights into the relationship between internal audit characteristics and modified audit opinions, contributing to the ongoing literature on corporate governance and audit quality.

3. 2. MODEL SPECIFICATION AND MEASUREMENT

The following cross-sectional logistic regression model is suggested to evaluate our hypotheses:

$$MAO = \beta_0 + \beta_1 IAFSOURCING + \beta_2 \log IAFINVone + \beta_3 AUDSIZE + \beta_4 AUDLAG + \beta_5 + \\ + LOSS + \beta_6 NCFGOAR + e \quad (1)$$

Table 1. below is described and summarised the variables included in this study model

Variables	Explanation and Measurement	Expected Sign
Dependent Variable: MAO	A dummy variable equal to 1 if the auditor issues a modified audit opinion, including a qualified opinion, disclaimer of opinion, or adverse opinion, and 0 otherwise.	—
Internal Audit Sourcing Arrangements: IAFSOURCING	A dummy variable equal to 1 if the internal audit function is fully or partially outsourced to a third-party provider, and 0 if it is performed in-house.	—
Investment in Internal Audit Function: logIAFINVone	The natural logarithm of the total costs incurred for the internal audit function during the financial year.	—
Audit Firm Size: AUDSIZE	A dummy variable equal to 1 if the company is audited by a Big Four audit firm, and 0 otherwise.	—
Audit Report Lag: AUDLAG	The number of days between the company's financial year-end and the date of the audit report.	+
LOSS	A dummy variable equal to 1 if the company reported negative net income in either or both previous two years and 0 otherwise.	+
Operating Cash Flow: NCFGOAR	Net cash flow from operating activities divided by total assets.	—

Source: Author's creation

4. SAMPLE SELECTION AND SAMPLE DESCRIPTION

68 firm-year observations pertaining to 48 organizations that obtained a changed audit opinion are eligible to be included in the study as a test sample group following the screening process. The type of audit opinion received by these companies is classified into qualified (53%), disclaimer (46%) and adverse (1%), as shown in Table 2.

Table 2. Type of audit opinion

Type audit opinion	2009	2010	2011	Total	Percentage
Qualified	9	16	11	36	53%
Disclaimer	13	12	6	31	46%
Adverse	-	1	-	1	1%
Total	22	29	17	68	100%

Source: Author's calculation

A final sample of 132 firm-years observations pertaining to 96 companies was obtained by matching the test sample group companies with an equal number of companies that had received an unmodified audit opinion. Table 3 depicts the distribution of final sample based on the specific industry groups (based on the 7 sectors).

Table 3. Sample industry description for audit opinion

Type of industry	Frequency in modified audit opinion group	Frequency in unmodified audit opinion group	Total of Frequency in all groups
Trading/Services	19	19	38
Construction	10	10	20
Technology	9	9	18
Industrial Products	21	21	42
Consumer Products	7	7	14
HOTEL	1	1	2
Property	1	1	2
Total	68	68	136

Source: Author's calculation

Table 4 presents the reasons for modified audit opinions in the sample, including qualified opinions, disclaimers of opinion, and adverse opinions. These reasons are classified into three categories. First, 32 firm-year observations received a modified audit opinion due to insufficient appropriate audit evidence, which represents a limitation on the scope of the audit. Second, five firm-year observations received a modified audit opinion due to going-concern issues. Third, 31 firm-year observations received a modified audit opinion due to both insufficient appropriate audit evidence and going-concern concerns.

These results indicate that, during the 2009-2011 period, most modified audit opinions among Malaysian listed companies were associated with insufficient appropriate audit evidence. This suggests weaknesses in the quality and reliability of financial reporting. Accordingly, a modified audit opinion may serve as a direct proxy for financial reporting quality.

Table 4. Reasons for Modified Audit Opinions

	Qualified			Disclaimer			Adverse			Total
	2009	2010	2011	2009	2010	2011	2009	2010	2011	
Insufficiency	9	11	10	1	-	-	-	1	-	32
Going concern opinion	-	3	1	-	-	1	-	-	-	5
Both	-	2	-	12	12	5	-	-	-	31
Total	9	16	11	13	12	6	-	1	-	68

Source: Author's creation

5. DESCRIPTIVE STATISTICS AND UNIVARIATE ANALYSES

Tables 5 and 6 present the descriptive statistics and univariate test results for the study variables. Table 5 reports the results for continuous variables across the full sample, the modified audit opinion group, and the matched control group with unmodified audit opinions.

For investment in the internal audit function (logIAFINVone), the mean value for the full sample is 8.164, with a median of 10.337. The mean investment is lower for firms receiving modified audit opinions (6.635) than for firms receiving unmodified audit opinions (9.693). This difference is statistically significant ($t = -3.834$; $p = 0.000$), suggesting that firms with unmodified audit opinions invest significantly more in their internal audit function. This preliminary result supports the expected negative association between internal audit investment and modified audit opinions.

For audit report lag (AUDLAG), the full sample has a mean of 107.09 days and a median of 116 days. Firms receiving modified audit opinions have a longer average audit report lag (117.2 days) than firms receiving unmodified audit opinions (97 days). The difference is statistically significant ($t = 7.383$; $p = 0.000$), indicating that firms with modified audit opinions experience longer reporting delays. This finding is consistent with prior audit reporting studies.

For operating cash flow (NCFGOAR), the mean value for the full sample is 0.5782, with a median of 0.037. The mean value is lower for the modified audit opinion group (-0.029) than for the unmodified audit opinion group (1.182). However, the difference is not statistically significant ($t = -1.593$; $p = 0.114$). Therefore, the univariate results do not provide preliminary support for a significant relationship between operating cash flow and modified audit opinions.

Table 6 reports the descriptive statistics and univariate test results for the dummy variables. The Mann–Whitney U-test results show no statistically significant differences between the modified and unmodified audit opinion groups for internal audit sourcing arrangements (IAF-SOURCING) or audit firm size (AUDSIZE). This suggests that the two groups do not differ significantly in terms of whether the internal audit function is outsourced or whether the company is audited by a Big Four audit firm.

However, the difference in LOSS is statistically significant ($p < 0.000$). Firms in the modified audit opinion group are more likely to have reported losses in prior years than firms in the unmodified audit opinion group. This result is consistent with prior audit reporting studies, which suggest that financially distressed firms are more likely to receive modified audit opinions.

Table 5. Descriptive Statistics and Univariate Test Results of Continuous Variables Categorized by Modified Audit Opinion /Unmodified Audit Opinion

Total Groups of Sample <i>t</i> -test						Test sample (the recipients of Modified. AO)			Control test sample (the recipients of Unmodified. AO)			Modified. AO Vs. Unmodified. AO <i>t</i> -test	
Variables	Mean	Median	Min	Max.	Std. Deviation	Mean	Median	Std. Deviation	Mean	Median	Std. Deviation	t-stat	P value Sig. (2-tailed)
logIAFINVone	8.164	10.337	0	13.82	4.815	6.635	9.754	5.269	9.693	10.783	.464	-3.834	.000
AUDLAG	107.09	116	50	140	18.636	117.2	119	7.553	97	103	2.570	7.383	.000
NCFGOAR	.5782	.037	-1.731	36.696	4.404	-.029	.003	.235	1.185	.084	.762	-1.593	.114

Source: Author's creation

Table 6. Descriptive statistics (percentage) and univariate test results for dummy variables for modified audit opinion /unmodified audit opinion

Variables		Type of audit opinion		Mann-Whitney U-test
		Modified	Unmodified	
IAFSOURCING	OUTSOURCING	28 (44%)	36 (56%)	.165
	IN-HOUSE	38 (56%)	30 (44%)	
AUDSIZE	BIG 4	20 (42%)	28 (58%)	.149
	Non-BIG 4	46 (55%)	38 (45%)	
LOSS	Loss	57(76%)	18 (24%)	.000
	UnLoss	9 (16%)	48 (84%)	

Source: Author's creation

To determine whether multicollinearity issues exist among the independent variables, several tests have been identified. These consist of tolerance (1/VIF), variance inflation factor (VIF), and correlation matrix.

Since none of the variables in the model of modified audit opinion correlates equal or above 0.80, the correlation matrix in this study confirms that there is no multicollinearity among the variables. This is the first indication that there isn't a significant collinearity problem between the independent variables (Hair et al., 1995; Greene, 1999; Cooper & Schindler, 2003). All the independent variables had correlations below the critical limits of 0.80, with the strongest correlation (0.389) between LOSS and AUDLAG. According to Table 7, this shows that there are no issues with multicollinearity in either of the model estimations.

Table 7. Correlation matrix of independent variables

	IAFSOURCING	logIAFINVone	AUDSIZE	AUDLAG	LOSS	NCFGOAR
IAFSOURCING	1					
logIAFINVone	0.148	1				
AUDSIZE	0.118	0.119	1			
AUDLAG	-0.021	-0.142	-0.282	1		
LOSS	-0.072	-0.200	-0.136	0.389	1	
NCFGOAR	-0.115	-0.029	0.172	-0.352	-0.026	1

Source: Author's creation

In general, multicollinearity issues are identified when the variance inflation factor (VIF) is greater than 10 and the tolerance value is less than 0.10 with respect to the (VIF) and the tolerance (1/VIF) (Hair et al., 2006; Pallant, 2007). Variance inflation factors (VIF) and tolerance (1/VIF) for the model stated in this study do not surpass (10) and (0.10), respectively, according to the studies. according to Table 8. This suggests that multicollinearity is not an issue for this study's model explanation.

Table 8. Multicollinearity statistics of assessing VIF and Tolerance values

Variable	Collinearity statistics	
	Variance Inflation Factor (VIF)	Tolerance Value (1/VIF)
AUDLAG	1.43	0.697498
LOSS	1.23	0.814424
NCFGOAR	1.19	0.837371
AUDSIZE	1.12	0.894004
logIAFINVone	1.08	0.930060
IAFSOURCING	1.05	0.949595
Mean VIF	1.18	

Source: Author's creation

6. EMPIRICAL RESULTS

MULTIVARIATE LOGISTIC REGRESSION RESULTS

Table IX presents the results of the multivariate logistic regression used to test the study hypotheses. The model demonstrates satisfactory overall fit and predictive performance. The Hosmer–Lemeshow test is not statistically significant ($p = 0.213$), indicating adequate model calibration. The model correctly classifies 81.8% of observations, and the overall model chi-square is statistically significant ($\chi^2 = 100.69$, $p < 0.000$), suggesting that the independent variables jointly explain variation in the likelihood of receiving a modified audit opinion. The Cox and Snell R^2 is 0.534, while the Nagelkerke R^2 is 0.712, indicating that the model has substantial explanatory power.

To improve the reliability of the empirical findings, several procedures were adopted to reduce potential bias. First, a matched-pair research design was used to control for observable differences between firms by matching observations on fiscal year, industry, market segment, and firm size. Although an instrumental variable approach could further address endogeneity concerns, this was not feasible due to the limited sample size and the lack of suitable instruments in the Malaysian context. Second, outliers were assessed using standardized residuals, following the threshold of ± 3.3 recommended by [Tabachnick and Fidell \(2013\)](#). Two outlying observations were identified and removed from the main analysis, together with their matched control observations, to preserve the matched-pair structure.

The model diagnostics further indicate that multicollinearity is not a concern. Variance inflation factors for all predictors are below 1.5, and tolerance values exceed 0.69. These results suggest that the independent variables are not highly correlated and that the regression estimates are stable.

Overall, the diagnostic tests support the adequacy of the logistic regression model. However, additional robustness checks, such as alternative model specifications or sensitivity analyses using larger samples, could further strengthen the validity of the findings in future research. Accordingly, the results should be interpreted as evidence of association rather than causality.

Table 9. Logistic Analysis Results for Audit Opinion

Variables	Expected Sign	Coef.	z	$P > z $
Constant	?	-12.214	-2.77	0.006
IAFSOURCING	—	-.304	-0.53	0.595
logIAFINVone	—	-.171	-2.35	0.019***
AUDSIZE	+	.404	0.64	0.520
AUDLAG	+	.113	3.01	0.003***
LOSS	+	2.486	4.18	0.000***
NCFGOAR	—	-8.817	-2.65	0.008***
Log Likelihood			-41.150	
Hosmer-Lemeshow			.213	
LR χ^2 (6)			100.69	
Prob > χ^2			0.0000	
Coxsnell R^2			0.534	
Nagelkerke R^2			0.712	
Pseudo R^2			0.5503	
Correctly Classified (%)			81.8	
No. of Observations			132	

Note(s); One-tailed significance applies to all p-values. ** are significant at $p < 0.05$, * at $p < 0.10$, and *** are significant at $p < 0.01$.

Source: Author's creation

The results show no statistically significant association between internal audit sourcing arrangements and modified audit opinions, even at the 10% significance level. This finding does not support H_1 and suggests that whether the internal audit function is conducted in-house or outsourced does not significantly affect the likelihood of Malaysian listed firms receiving a modified audit opinion.

This result is consistent with Kinney et al. (2004), who found no association between financial restatements and outsourcing the internal audit function. It also aligns with Mat Yasin and Nelson (2012), who report no significant relationship between internal audit sourcing arrangements and external audit fees. However, it differs from studies such as Prawitt et al. (2012), who found that outsourcing internal audit to the external auditor is associated with lower accounting risk, and Johl et al. (2013), who found a positive association between outsourced internal auditing and earnings management in Malaysia.

In contrast, the results reveal a significant negative association between investment in the internal audit function and the likelihood of receiving a modified audit opinion at the 1% level. This supports H_2 and suggests that greater investment in internal auditing enhances the effectiveness of monitoring activities and improves financial reporting quality. A better-resourced internal audit function is more capable of monitoring company operations, detecting material misstatements, reducing management bias, and limiting opportunistic behavior. As a result, firms that invest more in internal auditing are less likely to receive modified audit opinions.

This finding is consistent with prior research. Prawitt et al. (2009) argue that adequately funded internal audit functions are better positioned to detect and prevent material misstatements. Similarly, Prawitt et al. (2012) find that investment in internal auditing is associated with lower accounting risk, while Johl et al. (2013) reports a negative relationship between internal audit investment and abnormal accruals in Malaysia. Mat Yasin and Nelson (2012) also show that internal audit costs are positively associated with external audit fees, suggesting that investment in internal auditing reflects the scale and strength of the function.

Regarding the control variables, most results are consistent with expectations. Audit firm size (AUDSIZE) is not significantly associated with modified audit opinions. This suggests that being audited by a Big Four audit firm does not significantly affect the likelihood of receiving a modified audit opinion in the Malaysian context. This finding is consistent with prior studies reporting an insignificant relationship between audit firm size and modified audit opinions. One possible explanation is the role of Malaysia's Audit Oversight Board, which has strengthened audit quality requirements across both Big Four and non-Big Four audit firms.

Audit report lag (AUDLAG) and prior losses (LOSS) are positively and significantly associated with modified audit opinions. This indicates that firms with longer audit delays and prior losses are more likely to receive modified audit opinions. Finally, operating cash flow (NCF-GOAR) is negatively and significantly associated with modified audit opinions, suggesting that firms with stronger operating cash flows are less likely to receive modified audit opinions.

7. CONCLUSION

The internal audit function is an important internal governance mechanism that supports the reliability, objectivity, and credibility of corporate financial reporting. This study examined whether internal audit sourcing arrangements and investment in the internal audit function affect the likelihood of receiving a modified audit opinion among Malaysian listed companies.

The findings show that internal audit sourcing arrangements do not have a significant effect on the likelihood of receiving a modified audit opinion. However, investment in the internal audit function is negatively and significantly associated with modified audit opinions. This suggests that firms allocating greater resources to internal auditing are less likely to receive modified

audit opinions. A better-resourced internal audit function can strengthen monitoring activities, improve oversight of the financial reporting process, reduce agency problems, and enhance financial reporting quality.

Like all empirical studies, this research has several limitations. The sample covers only a three-year period, from 2009 to 2011, and consists of 132 firm-year observations representing 96 non-financial companies listed on Bursa Malaysia. Therefore, the findings may not be generalizable to other sectors, longer time periods, or countries with different governance systems and regulatory environments. The relatively small sample size may also limit the statistical power of the analysis. In addition, other factors, such as ownership structure and additional firm-specific characteristics, may influence the likelihood of receiving a modified audit opinion but are not fully examined in this study.

Future research could extend the sample period to capture different economic cycles and more recent corporate governance reforms, including MCCG 2017 and MCCG 2021. Further studies may also include additional governance and firm-level variables to address potential omitted variable bias. Methodologically, future research could apply panel data techniques, fixed-effects models, or dynamic GMM estimation to further address endogeneity concerns. Comparative studies across ASEAN emerging economies may also provide broader insights into the relationship between internal auditing, financial reporting quality, and modified audit opinions.

Despite these limitations, the study contributes to the literature by providing empirical evidence that investment in the internal audit function is associated with a lower likelihood of receiving a modified audit opinion. This highlights the importance of adequately resourcing internal audit functions as part of effective corporate governance and financial reporting oversight.

8. FOOTNOTES

1. Previous studies have highlighted both the advantages and disadvantages of in-house and outsourced internal audit functions. Advocates of in-house internal auditing argue that internal auditors possess superior organizational knowledge, greater familiarity with business operations, and are better equipped to respond to crises involving fraud, financial misstatements, and other accounting risks (Chadwick, 2000; Speklé et al., 2007; Coram et al., 2008; Prawitt et al., 2012). Conversely, proponents of outsourcing contend that external service providers offer greater independence because they are less susceptible to management influence than in-house auditors (James, 2003; Del Vecchio & Clinton, 2003). External auditors also tend to perceive outsourced internal auditors as more objective than in-house auditors (Gramling & Vandervelde, 2006). Furthermore, outsourcing may provide greater flexibility and cost efficiency (Caplan & Kirschenheiter, 2000), while outsourced providers often face higher legal liability, potentially strengthening audit quality (Ahlawat & Lowe, 2004).
2. The nature of internal audit outsourcing in the United States differs from that in Malaysia, primarily because of differences in regulatory environments, legal liability, and the maturity of internal audit practices. These institutional differences may influence the effectiveness of outsourced internal audit functions.
3. One reason why this topic has received limited empirical attention is the lack of publicly available information on internal audit sourcing arrangements. Consequently, many previous studies have relied on survey-based data collection (Barua et al., 2010).
4. The list of listed companies was obtained from the Bursa Malaysia website and used to identify sample firms. Historical financial data for these companies were subsequently collected from DataStream.

5. The study covers the period from 2009 to 2011. This period was selected because the Bursa Malaysia Corporate Governance Guide (2009), which introduced the governance disclosure requirements used in this study, became effective in 2009. In addition, the manual collection of corporate governance variables from annual reports made a longer study period impractical.
6. Based on the independent auditors' reports contained in the annual reports, modified audit opinions were classified as qualified opinions, disclaimers of opinion, or adverse opinions.
7. The matched-pairs sampling approach helps reduce selection bias by matching firms on fiscal year, industry, market segment, and firm size. This approach controls for characteristics that may systematically influence the likelihood of receiving a modified audit opinion.
8. Greater investment in the internal audit function enables firms to recruit and retain qualified, experienced, and skilled internal auditors, thereby strengthening the effectiveness of internal monitoring and financial reporting oversight.

Ethics Declaration

This study is based exclusively on publicly available secondary data and does not involve human participants, personal information, or confidential data. Therefore, ethical approval and informed consent were not required.

Acknowledgement

The author extend their appreciation to the Deanship of Scientific Research at Northern Border University, Arar, KSA for funding this research work through the project number NBU-FFR-2026-2079-04.

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