Does the Effectiveness of Risk Management Committee Mitigate Earnings Management Practices?

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Abstract **- Recently, there has been a lot of debate on the issues of earnings management practices. Most of these arguments have been confirmed by past studies in developed economies, where their regulations and institutional settings of corporate governance varied from those of emerging markets. Accordingly, corporate governance best practice has been considered an effective monitoring mechanism for strengthening the credibility and reliability of financial reporting. This study examines the effectiveness of risk management committee (RMC) attributes in mitigating earnings management (EM) practices in Nigeria. The study used a sample of 365 firm-year observations of listed non-financial companies from 2018 to 2022. Driscoll and Kraay's fixed effect standard error regression model was used to test the hypotheses. The study finds that RMC size and expertise have a negative effect on both AEM and REM. However, RMC independence is found to negative effect on REM only. Moreover, additional test validates that RMC scores (effectiveness) are significantly associated with lower EM practices. Our results are robust under alternative regression and measurements for endogeneity. The findings provide enormous insight to regulators, policymakers, and investors on the ongoing debate surrounding the effectiveness of the RMC attributes in mitigating EM practices, and the effectiveness of the revised NCCG 2018. Besides, the findings will provide important intuition to shareholders, financial analysts, and academia about the effective role of stand-alone RMC**

Keywords *- Risk management committee, Earnings management, Corporate governance, Nigeria*.

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I. Introduction

For over a decade, it almost became imperative for the board of directors to disclose risk management effectiveness. Hence, it seems to be equally acceptable that board members are assigned with the risk management function, who often delegate this monitoring function to the audit committee. However, prior studies demonstrate

that the audit committee alone is inadequate for ensuring effective internal control and risk-related matters of financial reporting (Aldhamari et al., 2020; Bajra and Čadež, 2018). Nowadays, RMC is found to have a significant monitoring role that can help detect and prevent corporate risk and improve the governance system (Elamer and Benyazid, 2018; Subramaniam et al., 2009; Tao and Hutchinson, 2013). In fact, it is common that many companies have extended the audit committee mandate to a separate RMC.

Though extensive studies on the effects of corporate governance monitoring on financial reporting quality (FRQ) were conducted, and thus, there is little empirical evidence on whether the effectiveness of RMC mitigates earnings management (EM) activities, especially in emerging markets (Elhaj et al., 2023; Habib et al., 2022). Most of the available research on the effect of corporate governance CG monitoring on EM has been conducted in developed economies with higher-quality institutional environments, such as the United Kingdom and the United States with mixed findings (Alhadab, 2018; Chi et al., 2011; Sitanggang et al., 2019). However, expectations were given on the risk management committee's actions within the company to increase their involvement in the monitoring process (Beasly, 2010; Subramaniam, 2009). Nevertheless, some stakeholders criticize the existence of RMC will create overlapping responsibilities with the audit committee (Abdullah & Shukor, 2017).

In Nigeria, the effectiveness of corporate governance mechanism has been doubted due to several corporate scandals and business collapses caused by multi-sectoral industry codes that led companies' management to be involved in financial scandals (Osemeke and Adegbite, 2016; Ozili, 2021). Prior 2018, multiple industry-specific Codes such as the Securities and Exchange Commission [SEC] Code (2011), the Central Bank of Nigeria [CBN] Code (2006), the National Pension Commission [PENCOM] Code (2008), the National Insurance Commission [NAICOM] Code (2009), and the Nigerian Communication Commission [NCC)] Code (2014) existed, and consequently contributed to corporate collapses and earnings management practices in Nigeria (Egbunike & Odum, 2018; Osemeke & Adegbite, 2016; Patrick *et al.,* 2015). Accordingly, several studies have been conducted after the SEC 2011 Code on specific governance mechanisms and accruals earnings management (Adegbite, 2015; Asogwa *et al.,* 2019; Bala *et al.,* 2018, 2021; Eze, 2017; Ugbede, 2013; Miko & Kamardin, 2015; Ozili, 2020; Patrick *et al.,* 2015), and their findings established inconsistent results. As a result, the Financial Reporting Council (FRC) reformed the Nigerian Code of Corporate Governance (NCCG) 2018. The purpose is to enhance the corporate governance best practices of public and private traded companies and to address issues of corporate failures and to harmonize the multi-sectoral codes of CG among dissimilar industries. The revised NCCG 2018 covers issues that encompass the board of directors, such as the formation of clear roles and responsibilities, strengthening the composition with a proper risk management system in place, and upholding the integrity of the business environment and earnings quality, as well as strengthening the relationship between company and shareholders.

Moreover, Principle 11.5 of the revised NCCG 2018 in Nigeria requires that a separate committee responsible for risk management should be established with at least three members, who are expected to meet at least twice a year, and the head should be someone knowledgeable in accounting and risk-related matters to effectively discharge their monitoring role. Additionally, the audit committee and risk management committee should have at least one director with a joint committee membership to help enhance both committees' discussions in a meeting (FRC, 2018). Similarly, Yatim (2010) posits that joint committee membership of directors strengthens board decisions and provides a positive impact on board monitoring and governance structure. Previous studies have established that RMC enhanced financial performance (Al-Hadi *et al.,* 2016; Ali *et al.,* 2017; Bhuiyan *et al.,* 2020; Hines *et al.,* 2015; Lawrence *et al.,* 2018; Ng *et al.,* 2011; Subramaniam *et al.,* 2009; Yatim, 2010).

However, studies that investigated the effects of RMC on EM are scanty, especially in emerging markets (Ayuningtyas and Harymawan, 2022; Habib et al., 2022), and the few available ones were conducted in developed markets with mixed results (Alhadab, 2018; Chi et al., 2011; Sitanggang et al., 2020). In Nigeria, the available studies examined the existence of a stand-alone RMC by using a dummy, if the company established an RMC (Sani *et al.,* 2018; Usman, 2019; Zango *et al.,* 2015), and their findings might not be effective and relied upon as the RMC attributes were neglected (Ding and Wei, 2023). Additionally, studies on the effects of RMC on earnings management around the world are scanty, and the available findings are inconsistent. For instance, Elhaj et al. (2022) concluded that RMC attributes mitigate real earnings management practices. However, other evidence established that RMC characteristics are ineffective in enhancing board monitoring (Alshirah et al., 2021; Elamer & Benyazid, 2018). The main idea of this study is whether compliance with Principles 11.5 articulated in the NCCG 2018 of separate RMC could reduce financial irregularities and increase firms' levels of accountability, transparency, and integrity which can create an enabling environment for investors. Therefore, this study aims to examine whether RMC attributes (size, independence, and expertise) are effective monitoring mechanisms that would improve the corporate governance system and mitigate EM practices in emerging markets like Nigeria.

II. Theoretical Framework and Hypotheses Development

A multi-theoretical view may offer valuable insights into EM interpretation in various regulatory and institutional settings (Abdou et al., 2021). This study employed agency theory and resource dependence theory (RDT) to examine the effectiveness of RMC attributes in mitigating EM. Firstly, agency theory is one of the most widely theoretical backgrounds used to explain the impact of corporate governance on EM (Alexander, 2010; Bzeouich et al., 2019; Mensah and Boachie, 2023; Wasan and Mulchandani, 2020). The corporate governance mechanisms are one of the monitoring strategies introduced to align the principals and agent interests, hence reducing managerial opportunity over earnings. Moreover, agency theory assumes that effective monitoring might result in transparent financial reporting, and thus reduce agency conflict between management and shareholders, thereby mitigating EM practices (Elghuweel et al., 2017; Jensen and Meckling, 1976). Similarly, agency theory presumes that board committees are internal governance mechanisms that can provide an effective monitoring role by discouraging managers from engaging in opportunistic behavior, leading to lower agency problems (Harymawan et al., 2021; Jensen and Meckling, 1976). Accordingly, agency theory tends to focus on the motivations of human behavior, especially self-interest, and overlook other motives that might influence corporate decisions (Subramaniam et al., 2009). For instance, corporate decisions may equally be influenced to conform with the useful resource to provide effective monitoring, and consequently enhance corporate performance.

Secondly, resource dependence theory (RDT) asserts that the board of directors is an essential component that helps to gain access to scarce resources and information (Boyd, 1990; Pfeffer and Salancik, 1978). In light of this, RDT assumes that firms' access to critical resources might help avoid potential difficulties and dissuade managers from engaging in opportunistic behavior, thereby enhancing the quality of financial reporting (Hillman and Dalziel, 2003). Hence, the RDT considers the risk committee as the basis of resource providers, who share their expertise to gain a competitive advantage for the firm, especially in the areas of corporate risk and financial reporting process (Arthurs et al., 2009; Engel et al., 2010). This signifies that the presence of risk committees on the corporate board is a significant internal monitoring mechanism that could protect firms' resources and reduce information asymmetry (Pfeffer and Salancik, 1978). However, for the committees to effectively perform their monitoring task, they must possess specific attributes as part of the resource that could reduce EM practices. Similarly, Hillman and Dalziel (2003) emphasize that combining the agency and resource dependence views could provide a better knowledge of the board monitoring and provision of resources functions in exploring the effects of governance mechanisms and FRQ. In line with previous evidence, this study assumes that RMC attributes, such as size, independence, and expertise could mitigate EM practices.

RMC size and earnings management

Agency theory suggests that larger board sizes are more likely to have expertise and diversity which can help create committees to address challenges and provide effective monitoring (Dalton et al., 1998; Pearce and Zahra, 1992). A larger board with qualified members can monitor firms and rationalize costs, while committees ensure compliance with principals' interests (Jensen and Meckling, 1976). Moreover, RDT suggests that a larger board can help acquire external resources, such as expertise and experience, which might improve the RMC's effectiveness. In Nigeria, the NCCG 2018 mandates a stand-alone RMC with executive and non-executive directors to oversee risk management policies, and risk identification, and to prevent financial reporting irregularities.

Earlier studies argued that a larger RMC size would improve the monitoring and advice function of the board (Kakanda et al., 2018; Malik et al., 2021) because different views can be voiced out (Bédard et al., 2004). However, Vafeas (2005) posits that larger committee sizes may lose focus on objectives. Prior demonstrates that RMC size significantly influences EM practice and enhances firm performance, which strengthens the monitoring of firms' financial risk (Juhmani, 2017; Saleh et al., 2007; Tao and Hutchinson, 2013). Recently, Mansor et al. (2022) showed that RMC size negatively affects REM activities in Malaysia. Equally, Karim et al. (2022) demonstrate that RMC size improves the market-based performance measure. Likewise, Elamer and Benyazid (2018) and Malik et al. (2021) establish a significant relationship between larger RMC size and financial performance. While Abdullah et al. (2015) document an insignificant relationship between larger RMC size and hedging activities disclosures. Therefore, this study assumes that a larger size of RMC members would bring the required resources that help reduce agency costs and mitigate EM practices, thereby providing effective monitoring of firm-related risk issues. Hence, the following hypotheses are formulated:

H1a: There is a negative relationship between the larger RMC size and accruals earnings management
H1b: There is a negative relationship between the larger RMC size and real earnings management.

RMC independence and earnings management

Board independence has been considered an effective corporate governance mechanism for monitoring managerial opportunism (Alhaddad and Whittington, 2019; Wan-Hussin, 2009). Likewise, RMC independence can effectively monitor and oversee risk-taking activities, and thus reduce managerial opportunistic behaviour and enhance FRQ (Al-Hadi, Hasan, and Habib, 2016). Fama and Jensen (1983) posit that the presence of independent directors on the board committees improves monitoring effectiveness because of their incentives to develop reputations as experts in decision-making and monitoring, as they have gained expertise through acting as managers in other companies. Additionally, the NCCG 2018 requires that RMC members should include a majority of non-executive directors with relevant skills to actively supervise the management and make impartial decision-making.

Previous studies argue that non-executive directors could demand better governance, than executive directors, as the former are more concerned about their board status than the latter (Annuar and Abdul Rashid, 2015). Similarly, firms with a majority of non-executive directors are less likely to engage in financial irregularities (Ahmad et al., 2015; Boudiab et al., 2021). Empirical evidence demonstrates inconsistent findings on the relationship between RMC independence and FRQ. Some evidence shows that the presence of independent non-executive directors on RMC has reduced risk-related matters and improved the quality of financial reporting (Abdulmalik et al., 2015; Mansor et al., 2022). Equally, Efenyumi and Okoye (2022) find that the presence of independent RMC enhances the financial reporting quality of Nigerian listed firms. Malik et al. (2021) observe that RMC independence reduces financial constraints and risk in US-listed firms. Conversely, Kallamu (2015) and Malahim (2023) establish that RMC independence enhances firm performance. On the contrary, Malik et al. (2021) conclude that higher percentages of independent RMC members did not improve firm performance. In line with the agency theory and prior evidence, this study predicts that RMC independence would reduce risk-related issues, thereby mitigating EM. Hence, the following hypotheses are formulated:

H2a: There is a negative relationship between RMC independence and accruals earnings management.
H2b: There is a negative relationship between RMC independence and real earnings management.

RMC expertise and earnings management

Agency theory emphasizes on the importance of directors' skills and expertise in their monitoring functions (Jensen and Meckling, 1976). The advocates of agency theory posit that the presence of experts with broader risk experience in risk committees enhances transparency, exposes excessive risks, and adheres to best risk management practices (Aldhamari et al., 2020; Subramaniam et al., 2009). Besides, RDT suggests that firms require external resources, such as experts' directors for effective decision-making (Pfeffer and Salancik, 1978).

Findings from existing studies established inconsistent and inconclusive evidence. For instance, Mansor et al. (2022) show that RMC accounting and financial expertise reduce REM activities in Malaysian listed firms. Likewise, Al-Hadi et al. (2016) document that RMC's financial expertise minimizes market risk in disclosure reporting. Moreover, Malik et al. (2020) conclude that RMC experts mitigate risk failure and contribute to higher firm value among UK-listed firms. Equally, Jia et al. (2019) establish that RMC's financial expertise reduces risk disclosure and enhances financial performance. On the contrary, Hines et al. (2015) observe that RMC's financial expertise is insignificantly related to audit quality. As such, we predict that RMC expertise would improve internal control, risk management oversight, and financial reporting transparency, and thus mitigate EM practices. Therefore, the following hypotheses are formulated:

H3a: There is a negative relationship between RMC expertise and accruals earnings management.
H3b: There is a negative relationship between RMC expertise and real earnings management.

III. Data and Methodology

Sample and data collection

This study applied a quantitative approach by using secondary data as the main source of information. The initial sample consists of all 168 companies listed on the Nigerian Exchange Group (NGX Group) from 2018 to 2022. Companies from the financial service sectors were excluded because of their different financial reporting implications and unique sector characteristics and regulations. Following Musa et al. (2023), the newly listed and delisted companies during the study period were dropped. Furthermore, companies with insufficient annual reports and incomplete data required were eliminated from the study sample. The final sample consists of 73

non-financial service companies (consisting of 365 firm-year observations) listed on the NGX Group from 2018 to 2022 that are operating in nine industries. The details of the sample selection procedure are provided in Table 1. Additionally, the RMC attributes (size, independence, and expertise) data were manually collected from companies' annual reports. The earnings management data and other financial information related to control variables were gathered from the Refinitiv Eikon Database.

Table 1: Details of sample selection and industry group

Panel A: *Sample selection*	*No. of companies*
Companies listed on the Nigerian Stock Exchange	168
Excluded companies:	
Financial services companies	(52)
Delisted companies for the period of 2018 to 2022	(16)
Incomplete data during the period of 2018 to 2022	(27)
Total excluded companies	(95)
Total final sample	73
Total final observations (73 companies *5 years)	365

Panel B: *Sample summary by industry*	*No. of companies*	*Observations*	*% of the sample*
Agriculture	5	25	6.8
Conglomerate	5	25	6.8
Construction and Real Estate	7	35	9.6
Consumer Goods	18	90	24.7
Healthcare	7	35	9.6
ICT	8	40	11
Industrial Goods	11	55	15.1
Natural Resources	3	15	4.1
Oil and Gas	9	45	12.3
Total	73	365	100

Source: Nigerian Exchange Group

Measures of earnings management

Accrual earnings management (AEM) model

We use both accrual-based and real earnings management measures to test the study hypotheses. For the accrual-based measure, we adopt discretionary accruals, which have been widely used in previous studies (Almarayeh et al., 2022; Dechow et al., 2010). We use discretionary accruals due to their simple computation of the earnings management level without any difficult assumptions concerning the objective of earnings management. Consistent with the previous studies (Braam et al., 2015; Mohmed et al., 2020; Mnif and Ben Hamouda, 2021), we use the Modified Jones Model to estimate non-discretionary accruals because of its outperforming role in detecting AEM, and the model is estimated cross-sectionally for each year and industry. Finally, we use the absolute values of the residuals that capture discretionary accruals in year t as the proxy of AEM.

$$TACC_{it} / TA_{it} -1 = \propto + \beta_1(1 / TA_{it} -1) + \beta_2(\Delta REV_{it} - \Delta AR_{it} / TA_{it} -1) + \beta_3(PPE_{it} / TA_{it} -1) + \varepsilon_{it} \quad (1)$$

Where: $TACC_{it}$ is the total accruals measured from the difference between net earnings (SALES) and operating cash flow (CFO), $TA_{it} -1$ is the total asset of firm i at the end of year t – 1, ΔREV_{it} is the change in sales revenue of firm i at the end of the preceding year, ΔAR_{it} is the change in account receivables of firm i at the end of the preceding year. $PPE_{it} / TA_{it} - 1$ is the aggregate plant, property, and equipment of firm i at the end of year t scaled by lagged of $TA_{it} - 1$, $\propto$, β_1, β_2, β_3, and β_4 are estimated parameters, while ε is the residual that represents a proxy for discretionary accruals.

Real earnings management (REM) model

Roychowdhury (2006) posits that companies generally engage in real business activities through (1) abnormal cash flow from operations (Ab_CFO) as a result of sales manipulation, (2) abnormal production costs (Ab_PROD) due to overproduction of inventory to report a high operational margin, and (3) abnormal discretionary expenses (Ab_DEXP) which constitute the sum of selling, general and administrative expenses, research and development, and advertisement expenses. This occurs as firms want to reduce discretionary expenditure to increase their revenue. Therefore, Ab_CFO, Ab_PROD, and Ab_DEXP are shown as the difference between the actual values of each activity minus the normal values which are estimated by the residuals of equations (2), (3), and (4) as follows:

$$CFO_{it} / TA_{it} - 1 = \propto 0 + \beta_1(1 / TA_{it} - 1) + \beta_2(S_{it} / TA_{it} - 1) + \beta_3(\Delta S_{it} / TA_{it} - 1) + \varepsilon_{it} \quad (2)$$

$$PROD_{it} / TA_{it} - 1 = \propto 0 + \beta_1(1 / TA_{it} - 1) + \beta_2(S_{it} / TA_{it} - 1) + \beta_3(\Delta S_{it} / TA_{it} - 1) + \beta_4(\Delta S_{it} - 1 / TA_{it} - 1) + \varepsilon_{it} \quad (3)$$

$$DEXP_{it} / TA_{it} - 1 = \propto 0 + \beta_1(1 / TA_{it} - 1) + \beta_2(S_{it} - 1 / TA_{it} - 1) + \varepsilon_{it} \quad (4)$$

Where: CFO_{it} implies the cash flow from operating activities for firm i in year t, TA_{it}_1 denotes the total assets at the end of year t _ 1, S_{it} signifies the net sales for firm i in year t, ΔS_{it} represents changes in net sales for firm i between year t _ 1 and year t (i.e., current year sales minus preceding year sales), and ε_{it} is the regression residual which represent the proxy for abnormal cash flow from operations. $PROD_{it}$ signifies the firm i production costs in year t, which is the sum of cost of goods sold ($COGS_{it}$) and inventory changes (ΔINV), while ε_{it} is the regression residuals which signifies the proxy for abnormal production costs. $DEXP_{it}$ represents the discretionary expenses for firm i in year t, which include the sum of selling, general, and administrative (SG&A) expenses, advertisement expenses, and R&D expenses, and ε_{it} is the regression residuals that stand for the proxy for abnormal discretionary expenses.

It is argued that the three aggregate REM measures provide stronger information than one REM measure and hence, indicate greater s activities (Braam et al., 2015; Cohen & Zarowin, 2010). However, it is important to note that lower values of Ab_CFO and Ab_DEXP implies higher REM, while higher values of Ab_PROD signifies higher REM practice (Cohen et al., 2008; Roychowdhury, 2006). Following previous studies (Cohen and Zarowin, 2010; Eng et al., 2019), this study estimates the REM based on the aggregate measures in equations (2), (3), and (4) by multiplying the standardized residuals of Ab_CFO by negative one (-1) and Ab_DEXP by negative one (-1) and adding to the Ab_PROD standardized residuals (Al-Haddad and Whittington, 2019; Ghaleb et al., 2022; Pappas et al., 2019), where higher values of these measures indicate greater REM activities. Therefore, equation (5) is used to measure the REM.

$$REM = Ab\_CFO*-1 + Ab\_PROD + Ab\_DEXP*-1 \quad (5)$$

Regression models

We use the residual value of proxies for accrual-based and real earnings management (AEM and REM), respectively, where higher values indicate more aggressive income-increasing earnings management., Firms with lower earnings management seem to have higher-quality earnings (Dechow et al. 2010). Accordingly, higher-quality earnings provide more information about the features of firm financial performance that are relevant to specific decision-making. However, the independent variables are considered as the corporate governance mechanisms that might influence EM activities. Also, the study added four control variables that might likely influence the level of earnings quality. Thus, the study does not make any significant prediction of the coefficient signs of these control variables but is only incorporated to strengthen the models and distinguish their impact on AEM and REM. Similarly, industry and year-fixed effects are considered in controlling the models.

Following previous research on AEM and REM activities (Al-Haddad and Whittington, 2019; Braam et al., 2015; Gao et al., 2017, among others), this study utilizes the following models in equations (6) and (7) to investigate whether RMC attributes can mitigate AEM and REM activities in the context of an emerging economy, in Nigeria.

$$AEM_{it} = \propto 0 + \beta_1 RMCS_{it} + \beta_2 RMCI_{it} + \beta_3 RMCE_{it} + \beta_4 BSIZ_{it} + \beta_5 FLEV_{it} + \beta_6 ROA_{it} + \beta_7 AUDQ_{it} + \varepsilon_{it} \quad (6)$$

$$REM_{it} = \propto 0 + \beta_1 RMCS_{it} + \beta_2 RMCI_{it} + \beta_3 RMCE_{it} + \beta_4 BSIZ_{it} + \beta_5 FLEV_{it} + \beta_6 ROA_{it} + \beta_7 AUDQ_{it} + \varepsilon_{it} \quad (7)$$

IV. Results and Discussions

Descriptive statistics

Table 3 presents the descriptive statistics of the study variables for the period of 5 years (2018 to 2022). The statistics show that AEM ranges from a minimum of -0.1834 to a maximum of 5.4635, with a mean of 0.1428. While the REM has a minimum of -1.9128 and a maximum of 0.4031 with a mean value of 0.1189. This result implies that companies listed on the Nigerian Stock Exchange are associated with both accrual-based and real earnings manipulation.

The average size of RMC members (RMCS) varies from a minimum of 2 to a maximum of 8 members, with an average of 3.7562, suggesting that sample companies broadly follow the recommendations of NCCG 2018 of having at least 2 members in RMC. This result is comparable to those documented by Kakanda et al. (2018) in Nigeria and Malik et al. (2021) in Malaysia, who reported the average RMC size as 3.872 and 3.546, respectively. The average value of RMC independence (RMCI) is 0.6449, and the minimum and maximum values are 0.2500 and 1.0000, respectively, denoting that about 65% of the members of RMC are independent directors, which is comparable to 79% reported by Malik et al. (2021) and 61% by Wu et al. (2016). As for RMC expertise (RMCE), the average value of 0.3265 indicates that about 33% of the committee's proportion had risk and financial expertise.

Table 3: Descriptive Statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
AEM	365	0.1428	0.5314	-0.1834	5.4635
REM	365	0.1189	0.3189	-1.9128	0.4031
RMCS	365	3.7562	1.2374	2.0000	8.0000
RMCI	365	0.6449	0.1883	0.2500	1.0000
RMCE	365	0.3265	0.1119	0.1429	0.6667
BSIZ	365	8.5753	2.5501	4.0000	16.0000
FLEV	365	0.1093	0.2186	0.0000	1.8799
ROA	365	4.1797	12.3170	-35.1800	174.5400
AUDQ	365	0.5671	0.4962	0.0000	1.0000

Notes: Table 3 summarizes the variables definitions.

Furthermore, Table 3 describes the control variables figures. The sample of the board of directors' size (BSIZ) varies from a minimum of 4 to a maximum of 16 members, with an average size of 8.5753. Moreover, the average value of firm leverage (FLEV) is 0.1093, indicating that about 11.45% of the sample companies are financed by creditors' funds. As for the return on assets (ROA), the average value is 4.1797. While about 57% representing 208 sample firms are audited by big4 auditors, rather than non-big4 auditors 43% being 157 sample firms.

Pearson correlation analysis

Table 4 depicts the Pearson correlations between earnings management, corporate governance variables, and other firm-specific variables. The table reveals that all the values of correlation coefficients are less than 0.8, suggesting that multicollinearity is not an issue among the variables as suggested by Gujarati (2006). The result appeared to have a considerable bivariate correlation between the dependent variable (REM) and the independent variables (RMC attributes), indicating that the formation of RMC is an effective mechanism for mitigating earnings management activities. Likewise, all the variance inflation factors (VIF) for the regression analysis do not exceed 2.0, suggesting that serious multicollinearity is not a problem in the model (Sekaran and Bougie, 2016)

Table 4: Pearson correlation analysis

Variables	1	2	3	4	5	6	7	8	9	VIF
1. AEM	1. 0000									
2. REM	0.0325	1. 0000								
3. RMCS	-0.0152**	-0.0409**	1. 0000							1.55
4. RMCI	-0.1010**	-0.2508***	0.1047**	1. 0000						1.14
5. RMCE	-0.001	0.0138	-0.4376***	-0.1546**	1. 0000					1.79
6. BSIZ	0.0890**	0.0503	0.5436***	0.1358***	-0.5052***	1. 0000				1.83
7. FLEV	0.0637	-0.052	-0.1058**	-0.1281***	0.0831	-0.1321***	1. 0000			1.07
8. ROA	-0.0491	-0.0656	0.0052	-0.0323	-0.0055	0.0805	-0.0506	1.0000		1.04
9. AUDQ	-0.2791***	-0.0026*	0.1901****	0.1004**	-0.1071**	0.1149**	-0.1861***	0.0960**	1.0000	1.09

Notes: *; **; and *** represent 10%; 5%; and 1% Significance level.

Regression diagnostic tests

For the avoidance of presenting a biased statistical inference in the result, some diagnostic tests were conducted to choose the best regression model for this study. Table 5 depicts the results of diagnostic tests. Firstly, the Breusch-Pagan/Cook-Weisberg Lagrange Multiplier Test (LM) was performed on the models, and the result confirmed the existence of heteroscedasticity (p-value = 0.000 and 0.000) for both AEM and REM, respectively. Secondly, the Wooldridge test for autocorrelation was executed, and the outcome shows the presence of autocorrelation in both AEM and REM models (p-value = 0.1917 and 0.1798, respectively). Finally, a Pesaran test was conducted, and the result confirmed the problem of cross-sectional dependence on both models (ABS = 0.464 and 0.473, respectively). To address these issues, we consider different approaches suggested by Newey and West (1987), where the approach to obtain heteroskedasticity and autocorrelation are consistent standard errors. Similarly, the generalized method of moments (GMM) based covariance matrix estimator is an extension of the Whites estimator. Although these techniques of estimating the covariance matrix are robust to certain violations of the regression model assumptions and do not consider cross-sectional correlation (Hoechle 2007). However, Driscoll and Kraay's (1998) fixed effect regression model demonstrates that the standard non-parametric time-series covariance matrix estimator can be modified and the result is robust to general forms of cross-sectional as well as temporal dependence. In addition, Driscoll and Kraay's fixed effect regression eliminates the deficiencies of other large-T covariance matrix estimators and its results are robust to certain violations of the regression model assumptions. Besides, Driscoll and Kraay's model handles issues related to heteroscedasticity, autocorrelation, and cross-sectional dependence (Driscoll & Kraay, 1998; Hoechle, 2007). Therefore, this study employed the Driscoll and Kraay fixed effect robust standard error because of its proper estimation in handling all the problems of heteroscedasticity, autocorrelation, and cross-sectional dependence (Hoechle, 2007; Joshi et al., 2021; Vogelsang, 2012; Wooldridge, 2010).

Discussion of empirical results

Table 6 presents the results of the multivariate regression analysis of the models. Regression Model 1 tests the relationship between RMC attributes (RMCS, RMCI, and RMCE) and AEM; and Regression Model 2 tests the relationship between RMC attributes (RMCS, RMCI, and RMCE) and REM. The result based on Driscoll and Kraay's fixed effect standard errors regression shows that both the models (AEM and REM) are significant at 1% and 1% levels, respectively, suggesting the validity of the models.

RMC size and earnings management

Table 6 presents the regression results. The regression result of Model 1 (AEM) indicates that RMC size has a negative and significant relationship with AEM ($t = -1.16$, $p = 0.049$), implying that the larger number of RMC members has a significant effect in mitigating AEM. Therefore, hypothesis H1a, which predicts that there is a negative relationship between larger RMC size and the AEM, is supported. This result is consistent with Zahra and Pearce (1989) who argue that a larger board size is more capable of scrutinizing the management activities to

ensure effective decisions. Similarly, Jia et al. (2019) establish that a larger RMC size is one of the main attributes that enhance the quality of risk management disclosure. This denotes that having a larger size of RMC members might lead to proper communication, which in turn might result in effective decision-making within the committee. On the contrary, the result is inconsistent with the arguments that larger board sizes might lose focus on objectives (Vafeas, 2005). Prior studies established that a larger RMC size has no significant effect on improving Malaysian firms' performance (Malik et al., 2021).

Moreover, the regression results of Model 2 from Table 6 shows that the relationship between RMC size and REM is negative and significant (t = -2.54, p = 0.013), suggesting that larger RMC size reduces REM practices. Hence, hypothesis H1b, which predicts a negative relationship between RMC size and REM is supported. This evidence is in line with agency theory and RDT, which assumes that larger boards and committee sizes are likely to comprise qualified and experienced members who can provide effective monitoring of the management (Jensen and Meckling, 1976; Pfeffer and Salancik, 1978). In addition, previous studies document larger RMC size is associated with effective monitoring. For instance, Mansor et al. (2022) reveal that RMC size is reduced level of REM practices among Malaysian listed firms, an emerging economies. Equally, Karim et al. (2022) conclude that RMC size is a critical attribute that improves market-based and firm financial performance. Likewise, Be'dard et al. (2004) advocate that a larger size of members in the audit committee brought different views from different experts. Aldhamari et al. (2020) document that a large RMC size enhances the committee's monitoring role and improves the financial performance of Malaysian listed companies. Consequently, this result implies that an increase in the number of RMCs leads to an enhancement of the committee's technical skills and expertise, and thus mitigates unethical REM activities. Importantly, this finding supported the NCCG rules, which emphasize forming a separate RMC who are experts in risk and financial matters to mitigate extreme risk and improve FRQ to protect shareholders' interests.

Table 6: Multivariate regression analysis of the relationship between RMC attributes and EM

	AEM			**REM**		
Variables	**Coeff.**	**t-value**	**p-value**	**Coeff.**	**t-value**	**p-value**
RMCS	-0.0191	-1.16	0.049**	-0.0247	-2.54	0.013***
RMCI	-0.0089	-0.41	0.684	-0.3662	-3.75	0.000***
RMCE	-0.0578	-2.63	0.010***	-0.2617	-2.04	0.045**
BSIZ	0.0299	3.32	0.001***	0.0156	1.15	0.042**
FLEV	-0.0559	-5.55	0.000***	0.0597	0.75	0.455
ROA	-0.0003	-3.39	0.001***	-0.0007	-0.61	0.543
AUDQ	-0.0178	-1.04	0.061*	-0.1245	-0.92	0.059*
_cons	-0.0460	-1.04	0.004***	-0.2838	-3.88	0.000***
Year Effect		Yes			Yes	
Observations		365			365	
R-square		0.2787			0.1910	
Prob>F		0.0000			0.0000	

Notes: *; **; and *** represent 10%; 5%; and 1% Significance level.

RMC independence and earnings management

Table 6 shows that the relationship between RMC independence and AEM is negative but not significant (t = -0.41, p = 0.684). Therefore, hypothesis H2a is not supported. This result is contrary to the agency theory, which predicts that a larger proportion of independent directors on the board can provide effective monitoring that would minimize agency conflicts, which in turn improves the quality of financial reporting. Furthermore, the result does not support the NCCG 2018 rules, which assume that hiring more outside directors with relevant skills might actively monitor the management and make impartial decision-making. The result is consistent with previous studies, which conclude that having a higher proportion of independent non-executive directors in RMC members is associated with lower-quality financial reporting (Al-Haddad and Whittington, 2019; Mansor et al., 2022; Tao and Hutchinson, 2013).

On the other hand, the result shows that RMC independence is negatively associated with REM (t = -3.75, p = 0.000), suggesting that a higher proportion of non-executive directors on RMC are more likely to mitigate REM practices. Hence, hypothesis H2b is supported. This supports the agency theory which assumes that the inclusion

of independent directors in the RMC is a strategic move because these directors are concerned about their reputation and would try to avoid risk that might affect the firm's financial integrity (Fama and Jensen, 1983; Hermalin and Weisbach, 1991). Similarly, prior studies conclude that RMC independence improves firm performance (Elamer and Benyazid, 2018; Malik et al., 2021). This study concludes that the proportion of non-executive directors on the RMC appeared to have inadequate knowledge which might be curtailing managerial discretion of EM practices in Nigeria.

RMC expertise and earnings management

The result in Table 6 depicts that RMC expertise is significantly associated with lower AEM (t = -2.63, p = 0.010). Likewise, the relationship between RMC expertise and REM is negative and significant (t = -2.04, p = 0.045), implying that the presence of risk and financial experts in RMC reduces EM practices. Therefore, hypotheses H3a and H3b are supported. This result is in line with the agency hypothesis and RDT, which predicts that directors' skills and expertise are critical resources that can help enhance their decision-making about management behaviour. Similarly, findings from Al-Hadi et al. (2016) disclose that RMC's financial expertise mitigates market risk disclosures of Gulf Cooperation Council (GCC) countries listed firms. Moreover, Malik et al. (2021) establish that the proportion of financial expert members in the RMC reduces firms' risk failures and immensely contributes to firm value among UK-listed companies. This result denotes that the proportion of directors with accounting/finance and risk-related expertise in RMC can exercise effective monitoring in the financial reporting process that could mitigate managerial opportunistic EM behaviour.

The result related to control variables shows that board size has a positive and significant relationship with AEM. This result is similar to those reported by Bhuiyan et al. (2020), suggesting that a larger number of directors on the board could lead to an increase in AEM practices. However, the board size has no significant effect on REM, suggesting that RMC is ineffective in mitigating REM (Abubakar et al., 2018). The result shows that firm leverage has a negative and significant relationship with AEM, and is insignificantly associated with REM, suggesting that changes in the proportion of liabilities to total assets of the firms mitigate AEM activities (Boachie and Mensah, 2022; Han et al., 2023).

The results also show that ROA is negative and significantly associated with AEM, indicating that better-performing companies do not engage in AEM practices (Bansal, 2021; Githaiga et al., 2022). The relationship between ROA is found to have an insignificant effect on REM, implying that better-performing firms are ineffective in curbing REM activities. The result is similar to that reported by Agustia et al. (2022). Finally, audit quality and AEM appeared to have a negative and significant relationship. Similarly, audit quality and REM have a negative and significant relationship, indicating that companies audited by the Big Four auditors are associated with lower AEM and REM practices. The results are similar to those of (Donatella et al., 2019; Han et al., 2023; Imen and Anis, 2021).

V. Additional Analyses

Additional analysis of RMC effectiveness and earnings management

The main findings reveal that RMC size, independence, and expertise are effective attributes for mitigating both AEM and REM. To re-examine the effect of RMC on EM, we use five composite scores of RMC attributes (RMCS, RMCI, and RMCE). The RMC effectiveness is constructed from the weighted scores of the five index which is in line with previous studies (Abdullah and Ismail, 2016; Aldhamari et al., 2020; Tao and Hutchinson, 2013). However, two steps have been followed to measure RMC effectiveness. In the first step, we measure individual attributes of RMC as detailed in Table 2. Secondly, each of the individual attributes is converted to a dichotomous score, that equals '1' if its original score is equal to or above the mean, and '0' if otherwise. Subsequently, the dichotomous scores of all five attributes were added to measure their effectiveness (Bin-Ghanem and Ariff, 2016; Niazi et al., 2023). The aggregate scores of five RMC attributes range from '0' to '5', where '0' denotes lower and '5' has greater effectiveness. Table 7 reports the alternative regression results of Models 1 and 2 on the effectiveness of RMC in mitigating EM, respectively. The regression result of RMC effectiveness (RMCEFF) is negative and significantly related to both AEM and REM (t = -2.02, p = 0.047 and t = -3.18, p = 0.002, respectively). To some extent, this result implies that firms with effective RMC attributes are associated with lower EM practices. and higher FRQ.

Table 7: Multivariate regression analysis with alternative composite scores for independent variables

	AEM			**REM**		
Variables	**Coeff.**	**t-value**	**p-value**	**Coeff.**	**t-value**	**p-value**
RMCEFF	-0.0141	-2.02	0.047**	-0.0265	-3.18	0.002***
BSIZ	0.0267	3.71	0.000***	0.0119	1.25	0.016**
FLEV	-0.0439	-3.36	0.001***	0.0805	1.05	0.298
ROA	-0.0001	-2.25	0.028**	-0.0002	-0.25	0.008***
AUDQ	-0.0234	-1.11	0.271	-0.1223	-0.90	0.037**
_cons	-0.1068	-1.56	0.012**	0.0138	0.29	0.069*
Year Effect		Yes			Yes	
Observations		365			365	
R-square		0.0274			0.0161	
Prob>F		0.000			0.000	

Notes: *; **; and *** represent 10%; 5%; and 1% Significance level.

Additional analysis by alternative earnings management measures

For the alternative AEM, we follow previous studies (Kothari et al., 2005), and included ROA to control for extreme operating performance match in the model as this might bias the discretionary accruals estimation (Alhadab et al., 2015; Al-Shaer and Zaman, 2021; Cohen et al., 2008). In line with the main regression model discussed in Section 3.2.1.1, we estimated the model cross-sectionally for each year and industry, and the discretionary accruals are the residuals of accruals expectation to compare the results. For the alternative REM measures, we follow previous studies in estimating alternative REM measures by adding the three estimated residuals into two REM_1 and REM_2. Where: REM_1, is the sum of abnormal discretionary expenses multiplied by negative one (−1) and added to abnormal production costs. Similarly, REM_2 is the sum of abnormal cash flow from operations and abnormal discretionary expenses multiplied by negative one (−1) (Braam et al., 2015b; Cohen and Zarowin, 2010; Hsieh et al., 2021; Nguyen et al., 2023). Hence, we used the Driscoll and Kraay fixed effect standard error in re-examining the model by adding ROA to AEM, whereas the REM model is aggregated into REM_1 and REM_2 as alternative measures.

Table 8 presents the results of additional tests of both alternative measures of the models. Interestingly, the results of additional tests appear to be almost consistent with the main analysis. Specifically, the additional results of Model 1 show that RMC attributes (RMCS and RMCE) are negative and significantly related with lower AEM, which are consistent with the main analysis after adding ROA to control operating performance match in the model. This implies that stronger RMC attributes can effectively mitigate EM through AEM. In addition, the result of additional tests of RMC attributes and REM_1 and REM_2 appear to have a significant negative relationship, which supports the results of the main analysis. Similarly, the additional tests of control variables are consistent with those reported in the main analysis. Accordingly, it can be concluded that these results are robust when compared with the results of the main analysis, suggesting that RMC attributes play a significant monitoring role in mitigating EM in Nigeria.

Table 8: Multivariate regression analysis with alternative measurements for AEM (AEM+ROA) and REM (REM_1 and REM_2)

Variables	**AEM Coeff. (t-value)**	**p-value**	**AEM+ROA Coeff. (t-value)**	**p-value**	**REM Coeff. (t-value)**	**p-value**	**REM_1 Coeff. (t-value)**	**p-value**	**REM_2 Coeff. (t-value)**	**p-value**
RMCS	-0.0191 (-1.16)	0.049**	-0.0092 (-1.34)	0.080**	-0.0247 (-2.54)	0.013***	-0.0128 (-3.66)	0.000***	-0.0156 (-0.92)	0.000***
RMCI	-0.0089 (-0.41)	0.684	-0.0789 (-0.63)	0.451	-0.3662 (-3.75)	0.000***	-0.0229 (-0.64)	0.523	-0.1567 (-1.82)	0.021**
RMCE	0.0578 (-2.63)	0.010***	-0.1203 (-3.05)	0.040**	-0.2617 (-2.04)	0.045**	0.0586 (3.65)	0.000***	0.1782 (4.34)	0.000***

BSIZ	0.0299 (3.32)	0.001***	0.0781 (2.25)	0.018**	0.0156 (1.15)	0.042**	0.0168 (1.66)	0.000***	0.0149 (7.24)	0.000***
FLEV	-0.0559 (-5.55)	0.000***	-0.0204 (-6.07)	0.000***	0.0597 (0.75)	0.455	-0.0012 (-0.19)	0.847	0.0235 (3.39)	0.001***
ROA	-0.0003 (-3.39)	0.001***	0.0097 (-3.86)	0.000***	-0.0003 (-0.61)	0.543	0.0003 (2.00)	0.049**	0.0002 (1.32)	0.190
AUDQ	-0.0178 (-1.04)	0.301	-0.0178 (-2.18)	0.297	-0.1245 (-0.92)	0.059*	0.0125 (1.57)	0.122	0.0128 (1.99)	0.323
_cons	-0.0460 (-1.04)	0.004***	-0.1407 (-1.49)	0.026**	-0.2838 (-3.88)	0.000***	0.1361 (4.31)	0.000***	0.1189 (3.05)	0.003***
Observations		365		365		365		365		365
Year effect		Yes		Yes		Yes		Yes		Yes
R-square		0.2787		0.5460		0.1910		0.2361		0.1862
Prob > F		0.0005		0.0110		0.0003		0.0000		0.0000

Notes: *; **; and *** represent 10%; 5%; and 1% Significance level.

VI. Summary and Conclusion

This study has examined whether RMC attributes mitigate EM activities. We used the abnormal discretionary accruals as a proxy for AEM, while the aggregate of abnormal cash flow from operations, abnormal discretionary expenses, and abnormal production costs are considered proxies of REM. By using panel data of companies listed on the Nigerian Exchange Group from 2018 to 2022, the empirical results reveal that RMC attributes mitigate both AEM and REM practices. Specifically, the findings reveal that RMC size has a significant negative effect on both AEM and REM. Similarly, RMC expertise is found to be significantly associated with lower AEM and REM practices. On the contrary, RMC independence is found to have an insignificant effect on AEM, but negative and statistically related with REM practices. Furthermore, our results are robust under different alternative models and measurements which confirms the main regression results.

Consequently, it is concluded that the formation of RMC is a risk-mitigation mechanism that helps reduce EM, which in turn enhances the quality of reported earnings. In line with the agency and resource dependence theories, our findings empirically establish that RMC is an effective governance monitoring mechanism. Our findings reveal that listed non-financial companies in Nigeria adhere to the NCCG 2018 recommendations, where specific RMC attributes are significant monitoring mechanisms that help in mitigating risk-related issues of EM practices. We also suggest that regulatory authorities should investigate the performance of independent RMC directors to provide possible explanations for their lack of effective decisions that could mitigate risk-related issues and AEM, which in turn might strengthen the RMC monitoring roles and enhance the effectiveness of the NCCG.

Furthermore, despite many studies that highlight the importance of the board of directors and audit committee as cornerstones for an effective governance system, our study has some important practical and policy implications. Firstly, our result indicates that RMC is an essential monitoring mechanism for various risk activities and earnings quality. Secondly, our findings may help to offer insight into the shortfall of literature concerning the effect of RMC attributes on EM in emerging markets, particularly in Nigeria, and how the effectiveness of RMC can mitigate potential risk and EM practices. Thirdly, our results support that top executives' risk-taking decisions are significantly influenced by RMC attributes, where investors, analysts, and other stakeholders may use RMC information in evaluating potential risk, and consequently reduce EM practices. Finally, our findings support the initiatives of the Financial Reporting Council (FRC) to establish a stand-alone risk committee, which shows that RMC attributes are effective governance mechanisms that help mitigate agency conflict.

Nevertheless, regulators and policymakers should work together to standardize the functions of the RMC as well as ensuring compliance with RMC composition and reporting practices in the annual report to help the shareholders better understand the functions of RMC in mitigating agency conflict through EM practices. This compliance will also encourage firms to make sure their RCs are fulfilling their monitoring functions and are not being flawed by bureaucratic policies. Similarly, our results may draw the attention of emerging markets as well as the international community on the effectiveness of a stand-alone RMC in enhancing the quality of financial information. The findings could serve as a reference for future studies across the international market.

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Conflict of interest statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

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