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The Impact of Ownership Structure on Real Earnings Management in an Emerging Market: The Moderating Role of Board Composition in Egypt

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Abstract

This study examines the relationship between ownership structure and real earnings management (REM), with a specific focus on the moderating role of board composition in the context of Egyptian listed firms. In emerging markets like Egypt, where governance frameworks often face challenges such as concentrated ownership, regulatory gaps, and limited board independence, understanding how these factors interact to influence financial reporting practices is critical. REM—manipulation of real business activities to alter reported earnings—poses serious risks to financial transparency and stakeholder trust, particularly in economies where enforcement mechanisms are still developing.

The study employs a quantitative research design, utilizing panel data from 60 non-financial firms listed on the Egyptian Stock Exchange over the period 2019–2023. Ownership structure is categorized into family, state, institutional, and foreign ownership. REM is measured using a combination of abnormal operating cash flows, discretionary expenses, and cost of goods sold. Board composition is operationalized based on the proportion of executive versus non-executive directors. Regression analysis and moderation testing are conducted using SPSS, the Process Macro extension, and STATA.

Findings reveal that all four ownership types are significantly and negatively associated with REM, indicating their effectiveness in reducing earnings manipulation. Moreover, board composition plays a moderating role: executive-dominated boards strengthen the negative relationship between ownership and REM, while non-executive boards tend to weaken it. These results provide nuanced insights into corporate governance in emerging markets and offer practical implications for firms, investors, and regulators aiming to enhance financial integrity and reporting quality.

Keywords: Real Earnings Management, Ownership Structure, Board Composition, Corporate Governance, Egypt, Emerging Markets, Financial Transparency.

I. Introduction

Corporate Governance (CG) plays a crucial role in ensuring accountability, transparency, and integrity in corporate decision-making. It serves as a system of rules, practices, and processes by which companies are directed and controlled, aiming to align the interests of management with those of shareholders and other stakeholders (OECD, 2015). Effective CG mechanisms help mitigate agency problems, safeguard against managerial opportunism, and promote sustainable corporate performance (Shleifer and Vishny, 1997). In emerging markets, where legal enforcement and investor protections may be weak or inconsistently applied, strong governance structures are particularly vital for enhancing firm credibility and attracting investment (Claessens and Yurtoglu, 2013).

One critical area influenced by CG is Earnings Management (EM), particularly Real Earnings Management (REM)—a practice where managers manipulate operational decisions to influence reported earnings. Unlike accrual-based earnings management, REM is often more difficult to detect and thus may be more prevalent in settings with weaker monitoring systems (Roychowdhury, 2006). The structure of firm ownership significantly shapes the incentives and capabilities of corporate actors to engage in or deter such practices. In contexts like Egypt, where ownership is often concentrated among families, state institutions, or a few blockholders, the implications for REM can be profound (Samaha et al., 2012).

Moreover, the composition of the board of directors serves as a key governance mechanism that can moderate the relationship between ownership structure and earnings management. Boards with greater independence, diversity, and financial expertise are expected to enhance oversight and curb opportunistic behavior (Fama and Jensen, 1983; Xie, Davidson, and DaDalt, 2003). However, in the Egyptian setting, structural challenges such as board entrenchment, limited independence, and socio-political ties may weaken the board's effectiveness in monitoring managerial conduct (Shehata, 2015).

1.1 Statement of the Problem

In recent years, the global economic landscape has been marked by heightened instability, driven by factors such as trade disputes, capital market volatility, Brexit-related disruptions, and geopolitical tensions. These uncertainties have been acutely felt in the Middle East, where persistent regional conflicts and fragile economic conditions have further compounded the challenges facing local businesses (Weshah et al., 2022). Egyptian firms, in particular, are grappling with mounting financial pressures and declining profitability, conditions that heighten the risk of opportunistic financial behavior. Amid such pressures, earnings management (EM), whether upward or downward, has emerged as a critical concern, as it directly impacts firm valuation, investor trust, and the reliability of financial disclosures.

A central factor influencing the prevalence of EM is the firm's ownership structure. According to agency theory, concentrated ownership tends to align managerial and shareholder interests, thereby reducing the scope for manipulative behavior (Saona et al., 2020). Large or dominant shareholders are often better positioned to exercise oversight and hold management accountable, unlike dispersed minority ownership, which may lack the influence necessary to deter earnings manipulation (Nguyen et al., 2020).

Despite the extensive literature on earnings management, limited research has examined how specific forms of ownership—such as family, managerial, institutional, and foreign ownership—affect real earnings management (REM), particularly in emerging market contexts like Egypt. Furthermore, the potential moderating role of board composition in shaping the ownership–REM relationship remains underexplored. This study seeks to address these gaps by providing empirical evidence from Egypt's energy sector, contributing to a deeper understanding of governance dynamics in emerging economies.

The study's main questions:

1. **Does Ownership Structure Affect Real Earnings Management?**
2. **Does Board composition affect the relationship between REM and Ownership structure?**
3. **What are the leading factors that are driving the earnings management of Egyptian listed companies?**

1.2 Research Objectives:

There are two main objectives of this study:

First: Investigate the relationship between ownership structure and real earnings management

Second: Investigate the impact of board composition as a moderator on the relationship between ownership structure and real earnings management.

1.3 Research Importance:

This study aims to address a significant gap in the corporate governance (CG) literature by examining the interaction between ownership structure and board composition, as well as their combined influence on REM, with a particular focus on the context of an emerging economy. Ownership structure plays a pivotal role in shaping managerial incentives and behaviors, ultimately affecting the accuracy and transparency of financial reporting. Concurrently, the composition of the board of directors functions as a vital internal control mechanism, with the potential to restrain opportunistic managerial practices such as earnings manipulation. By analyzing these governance dimensions together, this research aims to identify underlying vulnerabilities and propose evidence-based recommendations to enhance ethical conduct, strengthen accountability, and support reliable financial disclosure.

The relevance of this investigation is amplified by its focus on Egypt, an emerging market characterized by unique corporate ownership patterns, including family-dominated firms, state-owned enterprises, and growing foreign investment. While the individual effects of ownership and governance structures on earnings management have been widely studied in developed economies, their joint impact within the Egyptian context remains relatively underexplored. This research, therefore, contributes new empirical insights into how these governance mechanisms operate in a transitional institutional environment.

The findings are expected to offer practical implications for corporate leaders seeking to strengthen governance practices, for investors assessing risk and integrity, and for policymakers aiming to enhance regulatory oversight. Ultimately, the study contributes to

broader efforts to reinforce corporate governance in emerging markets, promote financial transparency, and build sustainable stakeholder trust.

1.4 Research Limitation:

This study is limited to Egyptian firms between 2019 and 2023, which may constrain the generalizability of its findings to other countries with different regulatory, governance, and cultural environments. The analysis focuses specifically on REM and four types of ownership, family, state, institutional, and foreign, within the Egyptian context. Other forms of ownership and alternative earnings management techniques, such as accrual-based methods, are not considered. Accordingly, the findings should be interpreted within Egypt's institutional setting and may not directly apply to more developed or differently structured markets.

2. Literature Review

The literature review is divided into two parts: the first explores how different ownership types (family, state, institutional, and foreign) affect REM; the second examines how board composition moderates these relationships.

Studies Show the Relationship between Ownership Structure and Its Effect on EM:

Moslemany and Nathan (2019) investigate the relationship between ownership structure and EM among Egyptian companies. EM is measured using discretionary accruals calculated through the modified Jones model. The research utilizes a sample of 50 firms listed on the Egyptian Stock Exchange over twelve years. Three ownership concentration indicators are examined: blockholder ownership, managerial ownership, and public ownership. The empirical findings reveal a significant positive association between blockholder ownership and the extent of earnings management, whereas no significant relationship is observed between managerial ownership or public ownership and EM levels. Siraji and Nazar (2021) investigate the impact of family and managerial ownership on REM among non-financial firms listed on the Colombo Stock Exchange in Sri Lanka. Employing a quantitative methodology, the study analyzes secondary data from 206 companies over the period 2015/2016 to 2019/2020,

excluding banking, finance, and insurance sectors due to stringent regulatory oversight. The findings indicate a significant negative relationship between both family and managerial ownership and REM, suggesting that these ownership structures contribute to mitigating earnings manipulation.

Ramalingegowda and Yu (2021) investigate the relationship between EM and common institutional ownership, defined as block ownership in same-industry peer firms by a shared set of institutional investors. The results show a negative association between common institutional ownership and EM. A quasi-natural experiment using financial institution mergers suggests this relationship is not driven by endogeneity. Further cross-sectional analysis reveals the effect is more pronounced in firms where common ownership lowers information costs and where misreporting could distort peer investments, highlighting the governance benefits of common institutional ownership in curbing earnings manipulation.

Al-Duais, et al., (2022) investigate the monitoring role of ownership structure on REM practices. The sample comprises 490 firms listed on the Malaysian Stock Exchange from 2013 to 2016, with 1,960 company-year observations. The findings demonstrate that family, foreign, and institutional ownership positively contribute to financial reporting quality and significantly mitigate REM, supporting existing CG theories and practitioner perspectives. These results underscore the critical role of ownership structure in reducing EM activities and offer practical implications for regulators, investors, and policymakers in enhancing governance frameworks in Malaysia's publicly listed companies.

Nuhu et al., (2023) examine the mitigating effects of ownership structure on EM practices among firms listed on Bursa Malaysia's main market from 2011 to 2021. Utilizing panel regression analysis with STATA software, the results demonstrate a significant negative relationship between foreign ownership and EM. In contrast, managerial ownership and ownership concentration show no significant impact on EM. The findings offer a practical framework highlighting the roles of ownership concentration, managerial ownership, and foreign ownership in curbing opportunistic behavior by executive managers. Moreover, they contribute to a broader understanding that aids investors and stakeholders in interpreting earnings reports and making informed decisions, particularly in non-

owner-controlled firms. These insights are especially valuable for stakeholders in Malaysian listed companies, emphasizing the importance of foreign ownership in mitigating earnings manipulation.

Le and Nguyen (2023) examine how board characteristics and ownership structure affect upward and downward EM in non-financial firms listed on the Hanoi and Ho Chi Minh Stock Exchanges. Using multiple regression models including System GMM, it finds that higher board age, ownership concentration, and financial leverage increase downward EM, while managerial ownership reduces it. State ownership decreases upward EM. By analyzing upward and downward manipulation separately, this research clarifies their distinct drivers, addressing gaps in prior studies that combined these effects.

The first group of studies highlights a general consensus that certain ownership structures—such as family, managerial, institutional, and foreign ownership—help mitigate EM by enhancing monitoring and aligning interests. This supports agency theory and reinforces the role of ownership in promoting financial transparency. However, differences emerge across contexts. For instance, while Moslemany and Nathan (2019) found a positive link between blockholder ownership and EM in Egypt, Siraji and Nazar (2021) reported a negative relationship in Sri Lanka. Ramalingegowda and Yu (2021) introduced the unique role of common institutional ownership across peer firms, and Al-Duais et al. (2022) emphasized the regulatory implications in Malaysia. These differences underscore the influence of country-specific governance environments.

Studies Show the moderating role of board composition on the relationship between ownership structure and EM:

Saona et al. (2022) investigate the influence of ownership structure and board characteristics on managerial opportunistic behavior in EM among 120 non-financial Spanish listed firms from 2006 to 2014. Using an unbalanced panel of 877 observations, the study finds that improvements in the institutional environment significantly reduce firms' discretionary ability to manipulate financial statements. The results highlight the importance of strengthening regulatory frameworks to promote greater transparency and curb opportunistic EM in the corporate sector.

Abideen et al. (2022) explore the influence of ownership structure and board composition on EM, employing REM as the measurement approach. Using Principal Component Analysis, the study constructs composite indices for ownership structure and board composition, and applies the Generalized Method of Moments (GMM) for empirical analysis. The findings indicate that increased levels of institutional and family ownership are effective in curbing managerial opportunism in earnings manipulation. In contrast, board composition is found to have a positive association with earnings management, suggesting that certain board structures may inadvertently facilitate rather than mitigate such practices. These results highlight the complex interplay between governance mechanisms and managerial behavior.

Triyonowati et al., (2022) examine the impact of ownership concentration on earnings quality and assess whether board diversity moderates this relationship. Using data from Indonesian manufacturing firms listed on the IDX for 2019–2020, the study applies Moderated Regression Analysis to test the hypotheses. The findings indicate that ownership concentration negatively influences earnings quality, implying a higher tendency for earnings manipulation. However, board diversity plays a mitigating role, weakening the negative impact of concentrated ownership on earnings quality. This suggests that diverse boards can enhance monitoring effectiveness and constrain opportunistic financial reporting behavior associated with concentrated ownership.

Salameh et al., (2023) explore the influence of board composition and ownership structure on firm value in the Jordanian context, using data from 35 industrial firms listed on the Amman Stock Exchange between 2016 and 2020. Their findings indicate that while board size and CEO duality do not significantly affect firm value, family, foreign, and institutional ownership positively contribute to it. In contrast, government ownership appears to have no meaningful impact. These results align with broader literature suggesting that active, non-state ownership types enhance firm performance and governance quality. The study adds a regional perspective by emphasizing the beneficial roles of family and institutional investors in emerging markets like Jordan. It also reinforces calls for strengthening governance frameworks that attract and support such ownership structures.

Akter et al. (2024) investigate the impact of ownership structure and board diversity on REM in South Asian emerging markets. Using data from 75 listed energy firms across Bangladesh, India, and Pakistan over the period 2015–2019, and employing two-step system GMM estimation, the study finds that higher levels of managerial ownership and ownership concentration are associated with lower REM. However, contrary to common assumptions, foreign and institutional ownership show no significant effect on REM. Moreover, the study reveals that board diversity plays a moderating role, particularly strengthening the influence of managerial ownership and ownership concentration on reducing REM, while having no significant interaction with foreign or institutional ownership. These findings underscore the nuanced roles of ownership types and highlight board diversity as a key governance mechanism in emerging market firms

The second group of studies generally agrees that family, institutional, and managerial ownership help reduce EM by strengthening governance. However, foreign and government ownership show mixed or no significant effects. Board diversity often moderates this relationship, usually reducing earnings manipulation, but its impact can vary depending on context. These differences highlight the complexity of governance mechanisms across different markets and firm environments.

Despite extensive research on the relationship between ownership structure and EM, several gaps remain, particularly in the context of Egypt and similar Middle Eastern economies. While board composition is a key governance mechanism, its moderating role has received limited empirical attention. Also, Previous literature often offers generalized recommendations for regulators and investors, overlooking stakeholder-specific strategies that could be more effective for distinct groups such as institutional investors or family-owned firms. Addressing these gaps can provide deeper, context-specific insights into CG practices and their influence on EM in emerging markets.

3. Research Methodology and Data Analysis

3.1 Research Methodology

3.1.1 Population:

This study targets Egyptian firms listed on the Egyptian Stock Exchange (EGX), as it aims to examine the impact of ownership structure on real earnings management (REM) and the moderating role of board composition. The EGX, one of the oldest stock markets globally, includes both the Alexandria and Cairo exchanges, with a history dating back to the late 19th century.

As of 2020, there are around 240 listed companies across various indices such as EGX30, EGX50, and EGX70. These firms operate in diverse sectors, including construction, energy, healthcare, food and beverages, industrial services, IT, media, and non-bank financial services. This broad sectoral coverage ensures the study captures a wide range of corporate ownership and governance structures in Egypt.

3.1.2 Sample Size

This study is based on a sample of 60 non-financial firms listed on the Egyptian Stock Exchange (EGX). The sample was carefully selected to represent a diverse range of industries while excluding financial institutions due to their distinct regulatory and reporting standards. Using a standard formula with a 95% confidence level, a 7% margin of error, and a conservative sample proportion (p = 0.5), the required minimum sample size was calculated to be 50 firms. As shown in Equation 1:

Equation 1: Sample Size

$$\text{Sample size, n} = N * \frac{\frac{Z^2 * p * (1-p)}{e^2}}{[N - 1 + \frac{Z^2 * p * (1-p)}{e^2}]}$$

Where,

- N = Population size, N= 135 listed firms in EGX
- Z = Critical value of the normal distribution at 95% confidence level, Z = 1.96
- p = Sample proportion, always uses 0.5 as a conservative approach.
- e = Margin of error, e = 7% or 0.07

So, Sample Size n = (135 × (1.96²) × 0.5 × (1−0.5)) / ((135−1) × 0.07² + (1.96²) × 0.5 × (1−0.5)) = 50

$$n = \frac{135 \times (1.96^2) \times 0.5 \times (1-0.5)}{(135-1) \times 0.07^2 + (1.96^2) \times 0.5 \times (1-0.5)} = 50$$

Expanding to 60 firms enhances the study's reliability and ensures better industry representation. Data were obtained from the published financial statements of these firms, serving as a secondary source for the analysis.

3.1.3 Data Collection

This study is based on secondary data collected from the financial statements of 60 non-financial companies listed on the Egyptian Stock Exchange (EGX) over the period from 2019 to 2023. Firms in the banking, finance, and insurance sectors were excluded because they follow different regulatory rules that could affect the results. The selected companies represent a mix of industries to ensure the sample reflects the broader market.

To ensure accuracy, data were gathered from multiple trusted sources, including the official EGX website, company websites, and Mubasher Info Egypt. These sources provided both financial details and governance-related information needed for the analysis. The study uses panel data, which means it looks at the same companies over several years. This allows for deeper analysis, helping to understand not just how companies differ from one another, but also how each company's practices change over time. This approach strengthens the findings and gives a clearer picture of how ownership structure and board composition influence real earnings management in the Egyptian market.

3.1.4 Research Hypotheses:

This study focuses on three principal variables: ownership structure, real earnings management, and board composition. Ownership structure serves as the independent variable and is operationalized through four distinct dimensions: institutional ownership, family ownership, state ownership, and foreign ownership. REM functions as the dependent variable, reflecting the extent to which firms engage in real activities manipulation. Board composition is introduced as a moderating variable, posited to influence the strength and direction of the relationship between ownership structure and real earnings management. This conceptual framework allows for

a comprehensive investigation of how governance mechanisms interact to affect financial reporting practices.

H_1: Ownership Structure Has A Significant Relationship With Real Earnings Management

H_2: Board Composition Significantly Moderates The Effect Of Ownership Structure On Real Earnings Management

3.1.5 Variable Measurements:

The independent variables in this study include ownership structure, measured by board size and the proportions of four ownership types: institutional, family, state, and foreign ownership. Real earnings management (REM) serves as the dependent variable and is quantified using the method proposed by Siraji and Nazar (2021) and Al-Duais et al. (2022), which combines abnormal operating cash flow, cost of goods sold, and discretionary expenses. Board composition acts as a moderator variable and is measured by the percentage of executive and non-executive directors relative to total board size.

3.2 Data Analysis

This research adopts an applied, quantitative approach to examine the relationships among the study variables. The research design is based on deductive reasoning, whereby hypotheses are developed from established theoretical frameworks and tested using empirical data. To analyze the relationship between ownership structure, board composition, and real earnings management, the study employs quantitative methods. Data analysis is conducted using both the Statistical Package for the Social Sciences (SPSS)—along with the PROCESS Macro extension for moderation analysis—and STATA, which offers robust capabilities for regression modeling and interaction effects. Utilizing both software packages enhances the validity and reliability of the results and allows for cross-verification of statistical findings.

3.2.1 Descriptive Analysis

Table 3.1: Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
IOP	0.000000%	98.500000%	27.297384%	28.155836%
Family_Ownership	0.0000%	74.0000%	28.425900%	25.5516888%
State_Ownership	0.00000%	80.00000%	14.8715950%	23.293304%
foreign_Ownership	0.00000%	75.10000%	12.9547600%	19.326024%
REM	-3.40000000	1.820000000	-.259862269	.5171016178
Valid N (listwise)				

Table 3.1 provides a summary of the main variables used in this study, based on 300 firm-year observations. The table includes key descriptive statistics such as the minimum, maximum, mean, and standard deviation, helping to illustrate how ownership structures and real earnings management vary across the sample. Starting with Institutional Ownership (IOP), the average level is approximately 27.3%, with values ranging from 0% to 98.5%. The relatively large standard deviation of 28.16% indicates wide variation in institutional presence among the firms.

Family Ownership has an average of 28.46%, with values ranging from 0% to 74%. A standard deviation of 25.56% suggests that while some firms are heavily family-owned, others have no family ownership at all. In terms of State Ownership, the mean is 14.88%, but the wide spread—from 0% up to 80%—and a standard deviation of 23.29% indicate that government involvement varies significantly across companies. Foreign Ownership averages 12.95%, with a maximum of 75.1% and a standard deviation of 19.32%, showing a moderate but uneven level of foreign investor participation. Finally, Real Earnings Management (REM) has a mean of -0.26, with values ranging from -3.40 to 1.82. The standard deviation is 0.57, and the negative average suggests that, overall, many firms in the sample tend to manage earnings downward through real activities.

3.2.2 Correlation Matrix

Table 3.2: Pearson Correlation Matrix

Variable	1	2	3	4	5
1. Institutional Ownership	1				
2. Family Ownership	.551** (p = .000)	1			
3. State Ownership	–.155* (p = .020)	.332** (p = .000)	1		
4. Foreign Ownership	–.219** (p = .002)	.000 (p = .987)	–.175** (p = .004)	1	
5. Real Earnings Management (REM)	.057 (p = .420)	.074 (p = .243)	–.175** (p = .009)	–.192** (p = .005)	1

Table 4.2 presents the Pearson correlation coefficients among the main variables in the study, based on 300 firm-year observations. The results highlight several important relationships between ownership structures and real earnings management (REM). Institutional ownership is positively correlated with REM (r = 0.057), but the relationship is weak and not statistically significant. This suggests that institutional investors may not have a strong direct influence on real earnings management practices in the sampled firms.

Family ownership also shows a weak positive correlation with REM (r = 0.074), which is likewise not significant. This may indicate that family-controlled firms do not systematically engage in higher or lower levels of REM compared to others. State ownership, on the other hand, shows a significant negative correlation with REM (r = –0.175, p < 0.01), implying that firms with greater state ownership tend to engage less in earnings manipulation through real activities. A similar pattern is observed with foreign ownership (r = –0.192, p < 0.01), suggesting that foreign investors may exert a disciplining effect on management behavior, possibly due to stricter transparency expectations or governance standards. Additionally, strong positive correlations exist between institutional and family ownership (r = 0.551, p < 0.01), and between family and state ownership (r = 0.332, p < 0.01), indicating that ownership types often co-exist or overlap in Egyptian firms.

3.2.3 Tests of Normality

Table 3.3: Tests of Normality

Variable	Kolmogorov–Smirnov	df	Sig.	Shapiro–Wilk	df	Sig.
Institutional Ownership	0.284	300	.000	0.828	300	.000
Family Ownership	0.180	300	.000	0.867	300	.000
State Ownership	0.309	300	.000	0.675	300	.000
Foreign Ownership	0.252	300	.000	0.688	300	.000
Real Earnings Management	0.512	300	.000	0.105	300	.000

Table 3.3 displays the results of the normality tests conducted for each of the study's main variables, using both the Kolmogorov–Smirnov and Shapiro–Wilk tests. These tests help determine whether the data for each variable follows a normal distribution—a key assumption in many parametric statistical analyses. As shown in the table, all variables returned significant p-values ($p < 0.05$) in both tests, indicating that the data for each variable deviates significantly from a normal distribution. Specifically, variables such as institutional ownership, family ownership, state ownership, foreign ownership, and real earnings management all failed to meet the assumption of normality.

Among them, real earnings management shows the strongest departure, with a Kolmogorov–Smirnov statistic of 0.512 and an extremely low Shapiro–Wilk value of 0.105, suggesting a highly non-normal distribution. The ownership variables also show consistent non-normal patterns, although to a slightly lesser extent. Given these results, the use of non-parametric tests or robust estimation techniques is recommended in subsequent analyses. Alternatively, transformations or bootstrapping methods may be applied where appropriate. Recognizing and addressing non-normality at this stage is essential to ensure the validity and reliability of the study's statistical findings.

3.2.4 Regression Analysis

In this study, linear regression analysis is employed to investigate the relationship between ownership structure and REM among firms. Linear regression is a suitable statistical technique for assessing the impact of multiple independent variables on a continuous dependent variable, enabling the identification and quantification of these effects. Specifically, the analysis examines how various forms of ownership affect the degree of REM. This method allows for the estimation of both the direction and magnitude of these relationships while accounting for the concurrent influence of the different ownership types. The application of linear regression thus offers important insights into how ownership structures shape managerial decisions related to EM practices.

Five regression models were employed to examine and test the research hypotheses. The first hypothesis, which states that *ownership structure has a significant relationship with real earnings management,* was tested using a single regression model. This model evaluates the overall effect of ownership structure, considered as a composite construct encompassing institutional, family, state, and foreign ownership, on real earnings management. The objective of this model is to assess whether variations in ownership structure collectively influence the extent of REM practices among the sampled firms.

The remaining four regression models were developed to test the second hypothesis: *H_2: Board composition moderates the relationship between ownership structure and real earnings management.* Each model assesses the moderating effect of board composition on the relationship between a specific ownership type and real earnings management. The first model investigates the moderating role of board composition in the relationship between state ownership and real earnings management. The second model examines this moderating effect in the context of family ownership. The third model explores the interaction between institutional ownership and board composition, while the fourth model focuses on the moderating effect of board composition on the relationship between foreign ownership and real earnings management. These models collectively provide a nuanced understanding of how board composition influences the dynamics between different forms of ownership and EM practices.

The First Hypothesis:

H_1: Ownership Structure Has A Significant Relationship With Real Earnings Management

This hypothesis will be tested using the following model:

$$REM_{it} = \beta_0 + \beta_1 OS_{it} + \epsilon_{it}$$

This model is used to examine the effect of the independent variable (Ownership structure) on the dependent variable (REM), as shown in Table 3.4.

Table 3.4: ANOVA Table of Model 1

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-85.441	22.326		-3.827	.000
Family Ownership	-.944	.338	.281	2.792	.006
State Ownership	-.911	.318	.247	2.868	.005
Institutional ownership	.-885	.302	.290	2.927	.004
foreign Ownership	-.808	.337	.182	2.395	.018
F-test	3.214				
Sig.	.014				
R	0.350				
R^2	0.123				
Adjusted R^2	0.107				
Std. error of the Estimate	84.034231710000000				

***Significant Level 0.05**

The results of the multiple regression analysis, as presented in Table 3.4, examine the impact of various ownership structures on real earnings management (REM) among Egyptian listed firms. The model is statistically significant, with an F-statistic of 3.214 and a corresponding p-value of 0.014, indicating that the group of independent variables jointly contributes to explaining variation in REM at the 5% significance level.

The coefficient of determination (R^2) is 0.123, suggesting that approximately 12.3% of the variation in REM is explained by the ownership structure variables included in the model. After adjusting for the number of predictors, the adjusted R^2 remains relatively stable

at 0.107, confirming that the explanatory power of the model is not driven by overfitting.

All four ownership types—family, state, institutional, and foreign ownership—show negative and statistically significant relationships with real earnings management. This indicates that higher levels of ownership by any of these groups are associated with lower levels of REM, suggesting that concentrated or active ownership can serve as an effective internal governance mechanism.

Among the variables, institutional ownership exerts the strongest negative influence on REM ($\beta = 0.290$, $p = .004$), followed closely by family ownership ($\beta = 0.281$, $p = .006$) and state ownership ($\beta = 0.247$, $p = .005$). Foreign ownership also shows a significant effect ($\beta = 0.182$, $p = .018$), though slightly weaker in magnitude.

These findings are consistent with agency theory, which posits that concentrated ownership enhances monitoring and reduces managerial discretion, thereby limiting earnings manipulation. They also underscore the role of diverse ownership types—both domestic and foreign—in promoting financial transparency and discouraging real earnings management in an emerging market context like Egypt.

The Second Hypothesis:

H_2: Board Composition Significantly Moderates The Effect of Ownership Structure On Real Earnings Management

This hypothesis will be tested using the following model:

This model is used to examine the moderator effect of Board composition on the relation between ownership structure types and REM, as shown in Table .4

1. State Ownership:

$$\text{REM} = \beta_0 + \beta_1(\text{State Ownership}) + \beta_2(\text{Board Composition}) + \beta_3(\text{State Ownership} \times \text{Board Composition}) + \epsilon$$

2. Family Ownership:

$$\text{REM} = \beta_0 + \beta_1(\text{Family Ownership}) + \beta_2(\text{Board Composition}) + \beta_3(\text{Family Ownership} \times \text{Board Composition}) + \epsilon$$

3. Institutional Ownership:

$$\text{REM} = \beta_0 + \beta_1(\text{Institutional Ownership}) + \beta_2(\text{Board Composition}) + \beta_3(\text{Institutional Ownership} \times \text{Board Composition}) + \epsilon$$

4. Foreign Ownership:

$$\text{REM} = \beta_0 + \beta_1(\text{Foreign Ownership}) + \beta_2(\text{Board Composition}) + \beta_3(\text{Foreign Ownership} \times \text{Board Composition}) + \epsilon$$

```
DATA LIST FREE/
   FOP          BD          REM          .
BEGIN DATA.
   -25.5517      .0000     -.3238
      .0000      .0000     -.2453
    25.5517      .0000     -.1668
   -25.5517     1.0000     -.1675
      .0000     1.0000     -.2495
    25.5517     1.0000     -.3315
END DATA.
```

Table 4: The Moderating Role of Family Ownership

When board composition (BD) is coded as 0, representing non-executive directors, an increase in family ownership is associated with a less negative effect on REM, indicating a tendency toward higher levels of earnings manipulation. Conversely, when BD equals 1, representing executive directors, an increase in family ownership corresponds with a more negative effect on REM, reflecting reduced earnings management. These results suggest that in firms governed predominantly by non-executive directors, greater family ownership may facilitate increased earnings manipulation, whereas in firms with executive directors on the board, stronger family ownership appears to mitigate such opportunistic behavior.

Table 5: The Moderating Role of Foreign Ownership

```
DATA LIST FREE/
   FOOP         BD          REM          .
BEGIN DATA.
   -12.9548      .0000     -.2530
      .0000      .0000     -.2533
    19.3260      .0000     -.2539
   -12.9548     1.0000     -.7882
      .0000     1.0000     -.5724
    19.3260     1.0000     -.2505
END DATA.
```

When BD is coded as 0, representing non-executive directors, REM remains relatively stable across varying levels of foreign ownership. In contrast, when BD equals 1, representing executive directors, REM tends to increase (become less negative) as foreign ownership rises, suggesting a diminished suppression of REM at higher levels of foreign ownership. These findings indicate that executive boards moderate the relationship between foreign ownership and REM, such that foreign ownership is more effective in reducing EM in the absence of executive directors.

```
DATA LIST FREE/
   IOP         BD          REM        .
BEGIN DATA.
   -27.2974      .0000     -.1647
      .0000      .0000     -.2514
    28.1558      .0000     -.3409
   -27.2974     1.0000     -.2976
      .0000     1.0000     -.3009
    28.1558     1.0000     -.3043
END DATA.
```

Table 6: The Moderating Role of Institutional Ownership

When BD is coded as 0, indicating the presence of non-executive directors, higher levels of institutional ownership are associated with a significant reduction in REM. Conversely, when BD equals 1, representing executive directors, REM remains relatively stable regardless of variations in institutional ownership. This suggests that the mitigating effect of institutional ownership on EM is more pronounced in firms governed primarily by non-executive boards.

Table 7: The Moderating Role of Stat Ownership

```
DATA LIST FREE/
   SOP         BD          REM        .
BEGIN DATA.
   -14.8716      .0000     -.2955
      .0000      .0000     -.2570
    23.2933      .0000     -.1967
   -14.8716     1.0000     -.2821
      .0000     1.0000     -.3278
    23.2933     1.0000     -.3992
END DATA.
```

When BD is coded as 0, representing non-executive directors, an increase in state ownership is associated with a less negative effect on REM, indicating a higher propensity for earnings manipulation. In contrast, when BD equals 1, representing executive directors, the relationship reverses, with greater state ownership linked to a reduction in REM. These findings suggest that the presence of executive directors on the board modifies the impact of state ownership, enhancing its effectiveness in curbing EM.

4. Conclusions and Recommendations

In today's complex and competitive business environment, trust in financial reporting is fundamental for investors, regulators, and other stakeholders. However, this trust is increasingly challenged by the use of real earnings management (REM)—a form of manipulation where managers adjust actual business activities, such as altering operations or discretionary spending, to influence reported earnings. While technically legal, REM can undermine the transparency and reliability of financial statements, ultimately distorting stakeholders' decision-making.

This study investigates how ownership structure and board composition influence the likelihood of REM among firms in Egypt, an emerging market with a distinctive corporate landscape. Different ownership types, including family, state, institutional, and foreign ownership, each bring unique governance incentives and monitoring capabilities. Understanding how these ownership forms interact with board dynamics offers critical insights into corporate governance (CG) effectiveness and earnings quality.

In the Egyptian context, ownership is often concentrated in the hands of families, the state, or foreign investors. Despite their prevalence, there has been limited empirical examination of how these ownership types affect earnings management. This study addresses that gap, revealing that ownership structure alone does not fully explain managerial behavior. Rather, the composition of the board of directors, which is tasked with overseeing management decisions and enforcing governance practices, plays a crucial moderating role. Boards differ in structure, including the balance between executive and non-executive members, and vary in expertise, independence, and diversity—all of which shape their ability to constrain earnings manipulation.

The results demonstrate that board composition significantly moderates the relationship between ownership structure and REM. Specifically, in firms with executive-dominated boards, the negative relationship between ownership and REM is amplified, indicating more effective governance and reduced manipulation. In contrast, when boards are predominantly composed of non-executive directors, the ability of ownership to mitigate REM is weakened, and in some cases, manipulation may even increase.

Importantly, the study also finds that all four ownership types—family, state, institutional, and foreign—are significantly and negatively associated with REM. This suggests that higher levels of ownership concentration tend to reduce the extent of real earnings management. Each ownership type appears to exert this effect through different mechanisms:

- **Family ownership may discourage manipulation due to a focus on long-term reputation and intergenerational continuity.**
- **State ownership may reflect greater regulatory oversight and public accountability.**
- **Institutional investors often act as professional monitors, limiting managerial discretion.**
- **Foreign ownership promotes financial transparency through higher disclosure expectations and alignment with international norms.**

These findings highlight the importance of combining strong ownership structures with effective board oversight. Board composition enhances or undermines the influence of ownership, and when both mechanisms are aligned, they significantly improve earnings quality and financial transparency.

The study offers practical recommendations for firms, investors, and policymakers operating in Egypt and similar emerging market contexts:

- **Firms should encourage responsible ownership, including family, institutional, and state ownership, as these structures have been shown to reduce REM.**

- **Boards of directors should be carefully composed, with a balanced mix of executive and independent members who possess relevant governance and industry expertise.**
- **Regular board evaluations, ongoing director training, and increased focus on board independence are essential, especially in firms with foreign or minority ownership.**
- **Regulators should develop guidelines and incentives to promote board effectiveness and transparency, ensuring that governance frameworks evolve alongside the complexity of corporate behavior.**

Implementing these practices can enhance the quality of financial reporting, improve investor confidence, and contribute to sustainable corporate performance in both local and global markets.

While this study provides important insights, future research can build on its findings in several ways:

- **Cross-country studies could help assess the generalizability of the results by comparing governance dynamics in other emerging markets.**
- **Additional board characteristics—such as gender diversity, tenure, meeting frequency, and audit committee structure—should be explored to deepen our understanding of board effectiveness.**
- **Future research could examine both real and accrual-based earnings management to provide a more comprehensive view of manipulation practices.**
- **Extending the time horizon or analyzing pre- and post-crisis periods (e.g., COVID-19, economic reforms) could reveal how governance practices evolve in response to economic shocks.**

This study contributes to the growing body of literature on corporate governance in emerging markets by demonstrating that ownership structure and board composition jointly shape managerial conduct. The findings underscore the need for governance systems that integrate both concentrated ownership and well-functioning boards to promote transparency, ethical behavior, and long-term stakeholder trust.

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