“The impact of ownership structure on earnings management: Evidence from Moroccan listed firms”

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THE IMPACT OF OWNERSHIP STRUCTURE ON EARNINGS MANAGEMENT: EVIDENCE FROM MOROCCAN LISTED FIRMS

Abstract

Earnings management remains a persistent concern in African markets, particularly in environments where ownership structures are concentrated and regulatory frameworks are still evolving. This study examines how different forms of ownership shape earnings management practices in Morocco, using a panel of 34 non-financial firms listed on the Casablanca Stock Exchange over the period 2018–2022. Earnings management is measured through discretionary accruals estimated using the performance-adjusted Kothari model, and the empirical analysis relies on a two-step GMM estimator. The findings reveal a heterogeneous impact of ownership structure on earnings management. Institutional ownership and foreign ownership are both negatively associated with earnings management, indicating that firms with stronger institutional or international participation tend to exhibit more discipline in financial reporting. In contrast, family ownership and managerial ownership are positively associated with earnings management, suggesting a greater propensity for discretionary accounting practices in firms where control or decision-making power is concentrated among family members or managers. State ownership and ownership concentration do not exhibit significant effects, pointing to a limited role of public participation or dominant shareholders in constraining reporting discretion. These findings highlight that ownership composition is a key determinant of reporting behavior in the Moroccan context, with clear differences between monitoring shareholders and controlling shareholders.

Keywords corporate governance, earnings management, ownership structure, emerging markets, Morocco, family ownership, state ownership, foreign ownership

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INTRODUCTION

Fraud and accounting irregularities have been highlighted as among those posing a top concern to companies across the world (Rezaee, 2005; Wells, 2001). As PwC's 2024 Global Economic Crime Survey highlights, 63% of companies in Africa have been affected by cases of fraud in the current two-year period. It is because of their susceptibility to fraud and failure to have adequate measures in place to control it that potential losses to companies amount to 5% of their total revenue per year (Association of Certified Fraud Examiners, 2024). It is against this background that the importance of corporate governance appears crucial in order to prevent opportunist behavior, such as that related to earnings management strategy.

As per the recent literature on the subject, governance structure plays a vital part in dealing with accounting manipulation (Almarayeh et al., 2024; Chemmaa & Ibrahimi, 2025). However, the prevailing body of literature is to a large extent focused on the board of directors and the audit committee, with relatively little attention to ownership struc-

ture, one of the basic cornerstones of manager control (Ibrahimi et al., 2025). This is more crucial in the context of developing nations and specifically in Morocco because the danger of inefficient and less transparent capital structure could constitute serious concerns with regard to the possible manipulative management of earnings (Ibrahimi & Baghdadi, 2024). While it is pertinent to note that the Code of Good Governance Practice could mitigate such serious concerns to a large extent when it was adopted in 2008, its effectiveness in dealing with serious challenges in crisis periods, such as COVID-19 or the 2018 boycott crisis, remains largely unassessed.

The scientific problem addressed in this study arises from the lack of integrated, empirical evidence on how different ownership forms influence earnings management in emerging markets. Existing studies yield mixed and sometimes contradictory results regarding the role of managerial, family, institutional, state, and foreign ownership in shaping financial reporting quality (Al-Matari, 2025; Dong et al., 2020; Githaiga, 2024; Chemmaa & Ibrahimi, 2025). These inconsistencies reflect deeper theoretical tensions between entrenchment theory (Al-Haddad et al., 2025; Chemmaa et al., 2025), which predicts greater manipulation under concentrated control, and alignment theory (Cheung & Lai, 2025), which suggests improved monitoring under certain ownership configurations. In the Moroccan market, where ownership is highly concentrated and diverse in nature, it remains scientifically unclear which of these theoretical mechanisms dominates in practice. Accordingly, the scientific problem addressed in this research lies in the absence of integrated empirical evidence concerning the impact of different forms of ownership, namely managerial, institutional, family, state, and foreign, on earnings management in the Moroccan context.

1. LITERATURE REVIEW AND HYPOTHESES

Earnings management occupies a central position in the assessment of financial reporting quality, as it raises critical issues of transparency, governance, and decision-making. Davidson et al. (1987) describe it as a set of deliberate actions undertaken by managers within the boundaries of accounting standards to achieve targeted earnings, illustrating the variety of underlying motivations and practices. The literature commonly distinguishes two major perspectives. The first is an opportunistic view in which manipulation serves to conceal underperformance or influence stakeholders' judgments (Beneish, 2001; Schipper, 1989). The second is an informational view where earnings management operates as a signaling mechanism designed to mitigate information asymmetry (Holthausen & Leftwich, 1983; Loomis, 1999). These theoretical insights have guided extensive empirical investigations seeking to understand the drivers of discretionary reporting.

A recurring theme in this research is the diversity of incentives that shape managerial decisions. Cheng and Warfield (2005) demonstrate that compensation schemes influence reporting choices, while Mahjoub and Miloudi (2015) show that pressure from shareholders demanding short-term performance reinforces the propensity to manipulate earnings. Haw et al. (2005) add that firms preparing for IPOs or attempting to avoid covenant breaches often resort to discretionary adjustments. The governance environment also plays a decisive role. Ali et Zhang (2013) find that weak monitoring systems expand managerial latitude, making opportunistic behavior more likely, an issue particularly acute in emerging markets.

Within this broader analytical framework, ownership structure emerges as a central determinant of reporting quality. A substantial body of empirical work documents the disciplinary influence of institutional investors. Githaiga (2024) and Widianingsih et al. (2024) report that institutional ownership reduces discretionary accruals and enhances transparency in several emerging economies. Evidence from Vietnam reinforces this pattern. Hieu and Anh (2023) show that institutional participation in governance limits manipulation, and Qi et al. (2021) find that site visits exert direct pressure on managers. A study by Farouk and Bashir (2017) on African markets confirms that institutional investors strengthen financial discipline, while Yahaya (2025) highlights the par-

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ticularly effective oversight exercised by pension funds and insurance companies. These studies consistently indicate that institutional ownership operates as a powerful external monitoring mechanism where internal controls may be insufficient.

Foreign ownership contributes to this disciplining effect through a complementary channel. Bao and Lewellyn (2017) show that foreign shareholders act as external monitors whose expectations and governance norms reduce managerial discretion. Findings from Han et al. (2022) reveal that firms with foreign investors adopt more transparent reporting practices due to higher institutional standards. Saleh and Mansour (2024) document similar results in the MENA region. The transmission of institutional norms is further illustrated by Kim et al. (2016) and Da Rin et al. (2019), who note that foreign investors' expertise and reputational concerns promote conservative accounting behavior. Beuselinck et al. (2017) add that these effects are amplified following the adoption of IFRS. Together, this literature shows that foreign ownership introduces higher governance expectations that strengthen reporting discipline in emerging markets.

Unlike these constraining effects, studies on family ownership generally describe a setting more conducive to discretionary reporting. Kumala and Siregar (2020) and Mokhtar and Elharidy (2019) show that family-controlled firms adjust earnings to preserve stability, maintain control, or safeguard private benefits. Research from Southeast Asia by Murni et al. (2023) indicates that manipulation becomes more pronounced as family concentration increases. Chi et al. (2015) interpret this pattern through the lens of Type II agency conflicts that oppose majority and minority shareholders. Adiguzel (2013) further demonstrates that concentrated family control weakens external oversight, creating an environment favorable to opportunistic adjustments.

In contrast, state ownership tends to restrict managerial discretion. Studies conducted in China by Cheng et al. (2015) and Dong et al. (2020) and Dong et al. (2020) show that public firms exhibit lower levels of discretionary accruals due to regulatory oversight and long-term strategic objectives. Evidence from Vietnam presented by Tran and Dang (2021) confirms this tendency. Ding et al. (2007) and Hoang et al. (2014) add that public enterprises demonstrate higher accrual quality than private firms, reflecting stronger institutional discipline. These findings suggest that state involvement promotes stability and transparency, especially in environments where public governance exerts significant authority.

Ownership concentration brings additional complexity. Bashir et al. (2024) and Sáenz González and García-Meca (2014) indicate that dominant shareholders may use their control to influence accounting choices for strategic or personal interests. A study by Le and Nguyen (2023) in Southeast Asia highlights increased manipulation risks when the protection of minority shareholders is limited. Viana Jr et al. (2021) observe comparable dynamics in Latin America, where weak external monitoring exacerbates the problem. Bao et Lewellyn (2017) show that these risks are particularly acute when governance institutions lack enforcement power. These results collectively suggest that concentrated ownership reinforces incentives for opportunistic reporting.

Managerial ownership presents yet another configuration with distinct governance challenges. Gul et al. (2003), Ogabo et al. (2021), and Paul et al. (2023) demonstrate that managers who hold equity stakes may manipulate earnings to secure personal benefits, especially in environments with weak oversight. O'Callaghan et al. (2018) and Peasnell et al. (2005) identify non-linear effects, showing that manipulation intensifies when managerial ownership is either very low or very high. Jun and Kwon (2002) add that concentrated managerial power increases discretion and undermines transparency.

Taken together, these studies outline a heterogeneous but coherent scientific landscape in which ownership structure plays a decisive role in shaping earnings management practices. The diversity of effects observed across institutional, foreign, family, state, concentrated, and managerial ownership highlights the importance of understanding how these mechanisms operate within the Moroccan context, characterized by high ownership concentration and limited empirical evidence.

The present study aims to examine how institutional, foreign, family, state, concentrated, and managerial ownership influence earnings management in Moroccan listed companies. This investigation leads to the following hypotheses:

H1: Institutional ownership has a negative impact on earnings management in Moroccan listed companies.

H2: Foreign ownership has a negative impact on earnings management in Moroccan listed companies.

H3: Family ownership has a positive impact on earnings management in Moroccan listed companies.

H4: State ownership has a negative impact on earnings management in Moroccan listed companies.

H5: Ownership concentration has a positive impact on earnings management in Moroccan listed companies.

H6: Managerial ownership has a positive impact on earnings management in Moroccan listed companies.

2. METHODS

This study examines how ownership structure relates to earnings management in Moroccan listed companies during the period 2018–2022, which represents the post-adoption phase of the 2008 Moroccan Code of Good Governance Practices. The initial population included 76 firms listed on the Casablanca Stock Exchange. Financial institutions were excluded because their regulatory and accounting frameworks differ significantly from those of non-financial firms. Companies with missing observations were also removed, resulting in a final balanced panel of thirty-four non-financial firms observed over five years, producing 170 firm-year observations. Financial and governance data were manually collected from annual reports published by the Casablanca Stock Exchange, and information regarding the COVID-19 period (2020–2021) was supplemented with World Bank data.

Earnings management is captured through discretionary accruals (DA), which constitute the dependent variable. DA is estimated using the performance-adjusted model of (Kothari et al., 2005), which corrects for the bias introduced by firm performance. Total accruals are first computed as net income minus operating cash flow, scaled by lagged total assets. Normal accruals are then obtained from the following regression:

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 + \beta_1 \frac{1}{A_{t-1}} + \beta_2 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \beta_3 \frac{PPE_{it}}{A_{it-1}} + \beta_4 ROA_{it} + \varepsilon_{it}, \quad (1)$$

Within this model, TA_{it} refers to the total accruals of firm i in year t, computed as net income minus operating cash flows, and A_{it-1} corresponds to the firm's total assets from the previous year. The term ΔREV_{it} represents the year-on-year change in revenue, while ΔREC_{it} captures the change in total receivables over the same interval. PPE_{it} indicates the net book value of property, plant, and equipment in year t, and ROA_{it} denotes the firm's return on assets for that fiscal year. The parameters $\beta_0, \beta_1, \beta_2, \beta_3$ *and* β_4 are the estimated coefficients of the model, and the error term ε_{it} represents the discretionary component of accruals, which serves as the proxy for earnings management.

Independent variables include those that capture ownership structure, an integral part of its framework. Institutional ownership (IO) is defined as a variable that measures the proportion of common stock ownership by institutional investors, while foreign ownership (FO) is defined as a variable that measures stock ownership by foreigners. In an attempt to also include family firms in its study, family ownership (FA) is defined as a variable that is one if a firm is family-owned and is zero otherwise. State ownership (SO) is also defined as a variable that measures proportional ownership of stock by public institutions of a country, while ownership concentration (OC) is defined as a variable that measures a firm's ownership by its largest individual stockholder. Finally, in an attempt to have a balanced discussion of ownership structure, managerial ownership (MO) is included and defined as a variable that measures stock ownership by a firm's executive officers or top managers.

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The analysis also controls a set of variables that emphasize firm features and governance practices. To account for the COVID-19 crisis period, a dummy variable (COV) is utilized that equals 1 in 2020 and 2021, and 0 otherwise. At the firm level, firm size (FS) represents the natural logarithm of total assets, firm age (AGE) denotes the number of years after firm incorporation, return on assets (ROA) marks the net income divided by total assets, while growth opportunities (GW) indicate the annual sales revenue growth. Regarding governance structure, a variable named audit quality (AQ) is utilized to identify Big 4 clients, while another variable labelled audit committee independence (ACI) is included and denotes the number of independent members that are part of a firm's audit committees. Other variables include board meeting activities (BM) that identify the number of firm boards' meetings and audit committee multiple directorships (ACM) that take the value 1 if audit committee members also serve on other boards, otherwise 0. Table 1 provides information regarding all the variables, including their description as well as sources.

To analyze the relationship between ownership structure and earnings management, it is important to keep in mind that accruals have a non-stationary component and that ownership structure variables are likely to be endogenous. Earnings management, as modeled by discretionary accruals, is often autocorrelated because previous accruals or earnings data might influence current accruals. Various ownership structures, such as institutional ownership, foreign ownership, and managerial ownership, often change based on previous accruals or earnings data, resulting in simultaneity that produces inconsistent estimates when using traditional fixed or random effect models.

In addressing such issues, a two-step Generalized Method of Moments (GMM) estimator as proposed in Arellano & Bond (1991) is utilized in this study. This is because the said test is specifically developed to isolate firm-specific unobservable variables and eliminate dynamic panels, as well as endogeneity problems, through its inherent instrumentation within the variables of the dependent and independent variables. In line with this,

Table 1. Summary of variables

Variable	Label	Measure Description	Source
Dependent variable			
Discretionary accruals	DA	Absolute value of discretionary accruals, calculated using the approach developed by Kothari et al. (2005)	Casablanca Stock Exchange
Independent variables			
Institutional ownership	IO	Percentage of the company's shares owned by institutional investors	Casablanca Stock Exchange
Foreign ownership	FO	Percentage of shares held by foreign investors	Casablanca Stock Exchange
Family ownership	FA	Dummy variable equal to 1 when a firm is controlled by a family, and 0 otherwise	Casablanca Stock Exchange
State ownership	SO	Percentage of shares owned by public or government entities	Casablanca Stock Exchange
Ownership concentration	OC	Share of ownership held by the single largest shareholder	Casablanca Stock Exchange
Managerial ownership	MO	Percentage of shares held directly by executive managers and directors	Casablanca Stock Exchange
Control variables			
COVID	COV	Dummy variable taking the value 1 for the years 2020 and 2021 (COVID-19 period), and 0 for all other years	World Bank
Firm size	FS	Natural logarithm of total assets, used as a size indicator	Casablanca Stock Exchange
Return on assets	ROA	Net income divided by total assets, capturing the firm's profitability	Casablanca Stock Exchange
Growth opportunities	GW	Year-to-year change in revenue between year t and t-1	Casablanca Stock Exchange
Audit quality	AQ	Dummy variable equal to 1 when the firm is audited by one of the Big Four audit firms, otherwise 0	Casablanca Stock Exchange
Firm age	AGE	Number of years since the company was founded	Casablanca Stock Exchange
Audit committee independence	ACI	Count of independent directors serving on the audit committee	Casablanca Stock Exchange
Board meetings	BM	Total number of board meetings held during the year	Casablanca Stock Exchange
Multiple directorships	ACM	Dummy variable equal to 1 if audit committee members also sit on other corporate boards, otherwise 0	Casablanca Stock Exchange

robust standard error estimates are also computed to fully incorporate heteroscedasticity and autocorrelation of residuals in line with best practices in dynamic panel data analysis.

Two approaches of analysis are utilized to derive robust inferences. 1) The base analysis focuses on the link between ownership structure and earnings management, while including variables at a firm-level, such as COV, FS, ROA, GW, and AQ as control variables. The base model is described as follows:

$$\begin{aligned} DA_{i,t} &= \alpha + \beta_1\ COV_{i,t} + \beta_2\ FS_{i,t} \\ &+ \beta_3\ ROA_{i,t} + \beta_4\ GW_{i,t} + \beta_5 AQ_{i,t} + \beta_6\ IO_{i,t} \\ &+ \beta_7\ FO_{i,t} + \beta_8\ FA_{i,t} + \beta_9\ SO_{i,t} + \beta_{10}\ OC_{i,t} \\ &+ \beta_{11}\ MO_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

The base model is re-estimated using a different set of controls as an extra step to see whether our findings really hold up. This time, instead of relying on the usual firm-level variables, we use governance indicators such as AGE, ACI, BM, AQ, and ACM. These measures give a more concrete sense of how the firm is monitored from the inside. This alternative approach allows us to see whether the main findings remain stable when governance factors are taken into account. The adjusted model is presented as follows:

$$\begin{aligned} DA_{i,t} &= \alpha + \beta_1\ AGE_{i,t} + \beta_2\ ACI_{i,t} \\ &+ \beta_3\ BM_{i,t} + \beta_4\ AQ_{i,t} + \beta_5 ACM_{i,t} + \beta_6\ IO_{i,t} \\ &+ \beta_7\ FO_{i,t} + \beta_8\ FA_{i,t} + \beta_9\ SO_{i,t} + \beta_{10}\ OC_{i,t} \\ &+ \beta_{11}\ MO_{i,t} + \varepsilon_{i,t}. \end{aligned} \quad (3)$$

In both equations, $DA_{i,t}$ is the absolute discretionary accruals of firm i at year t, and it is also considered as the dependent variable that serves as a proxy for earnings management in this study. α is a constant that is considered the baseline discretionary accruals when all variables are zero. Beta values β_1 to β_{11} measure how a unit change in either control variables or ownership structure will influence discretionary accruals. Finally, $\varepsilon_{i,t}$ is considered an error term that incorporates firm-specific shocks that are unaccounted for in a study.

Equations are estimated through a dynamic panel data specification, in which firms are identified as i and years as t. Two-step GMM estimation is applied while using lagged values of dependent and independent variables as internal instruments. Through this, it is possible to control for endogeneity problems arising from correlations between lagged values of dependent variables and error terms, simultaneously correcting for possible problems of simultaneity in ownership variables. The sequential model equation form is applied, sequentially imposing a base equation that includes control variables only, followed by a stepwise addition of ownership variables IO, FO, FA, SO, OC, and MO to analyze the overall joint impacts of diverse ownership criteria. Robust standard errors are applied in all equations in order to mitigate possible problems of heteroscedasticity and autocorrelation in our study. In Appendices B & C, it is observable that all correlations are low, and all values of the variance inflation factor (VIF) are less than 2, ensuring that multicollinearity is not a factor in our study.

3. RESULTS

Based on Table 2, representing the main regression results, the influence of ownership structure on discretionary accruals is developed by introducing variables in a stepwise manner in Models 2 through 7. In Model 2, IO has a negative and significant coefficient of -0.1922, which means that higher institutional ownership is associated with lower discretionary accruals in firms. In Model 3, FO is included and is associated with a negative and significant coefficient of -0.1004, meaning that higher foreign ownership is also associated with lower discretionary accruals in firms. In Model 4, FA is added and shows a positive and significant coefficient of 0.0826. This suggests that family ownership is associated with positive discretionary accruals in firms, differing in terms of the relationship that emerged in terms of previous variables.

In Model 5, SO is added and shows a negative and highly significant coefficient of –0.1724, reinforcing the sequence of negative coefficients seen for institutional and foreign ownership. This reflects a continued pattern of ownership types that correspond to lower discretionary accruals. Model 6 incorporates OC, which produces a positive coef-

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Table 2. Core analysis

Variable	M1	M2	M3	M4	M5	M6	M7
COV	−0.079**	−0.0814**	−0.0772**	−0.0788**	−0.0787**	−0.0789**	−0.0793**
	(0.028)	(0.0222)	(0.0314)	(0.0278)	(0.0283)	(0.0261)	(0.0253)
FS	−0.077***	−0.0668**	−0.0701***	−0.0805***	−0.0740***	−0.0830***	−0.0882***
	(0.002)	(0.0108)	(0.0057)	(0.0015)	(0.0032)	(0.0009)	(0.0003)
ROA	0.987***	0.8891***	1.0281***	0.9798***	1.0262***	0.9722***	1.0070***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GW	−0.003	−0.0129	0.0056	−0.004	−0.0082	−0.0126	−0.0262
	(0.959)	(0.8505)	(0.9367)	(0.9504)	(0.9061)	(0.8634)	(0.7248)
AQ	0.163***	0.1878***	0.1659***	0.1800***	0.1660***	0.1715***	0.1999***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
IO		−0.1922**					
		(0.0149)					
FO			−0.1004**				
			(0.0355)				
FA				0.0826**			
				(0.0469)			
SO					−0.1724***		
					(0.0088)		
OC						0.2196	
						(0.1238)	
MO							0.2130**
							(0.0104)
Constant	0.507**	0.4542*	0.4494*	0.4494*	0.4835**	0.4411*	0.5485**
	(0.038)	(0.0659)	(0.0659)	(0.0499)	(0.0465)	(0.0652)	(0.0198)
N	170	170	170	170	170	170	170
VIF	1.050	1.080	1.080	1.050	1.060	1.060	1.080
AIC	168.915	170.049	169.345	170.882	170.386	169.763	170.913
BIC	187.730	191.999	191.296	192.833	192.337	191.713	192.863

Note: Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01.

ficient of 0.2196 that is not statistically significant. While the direction of the coefficient is upward, the lack of significance means that no reliable association can be established between ownership concentration and earnings management in this model. Finally, Model 7 adds MO, which registers a positive and statistically significant coefficient of 0.2130. This is the second ownership variable to show a significant positive association, following family ownership in Model 4, suggesting that higher managerial stakes coincide with greater discretionary accruals in the sample firms.

The robustness check analysis in Table 3 re-estimates the models with governance-focused control variables, and the independent variables again enter sequentially across Models 2 to 7. In Model 2, IO shows a negative and highly significant coefficient of –0.2477, reinforcing its association with lower discretionary accruals. This effect is larger in magnitude than in the main analysis, suggesting a consistent downward pattern in this alternative specification. In Model 3, FO exhibits a negative and highly significant coefficient of -0.1024, confirming that higher ownership is related to lower accruals in the robustness test. In Model 4, FA shows a positive and marginally significant a coefficient of 0.0830, indicating a similar positive effect found in the main test. However, in Model 5, SO presents a negative and insignificant coefficient of –0.1201, suggesting no meaningful relationship in the robustness check. For Model 6, OC has a coefficient of 0.1773 that is positive but insignificant, just like in the main analysis. Finally, in Model 7, MO presents a coefficient of 0.1815 that is positive and significant, thus supporting that higher managerial ownership is a determinant of higher discretionary accruals.

In summary, the findings suggest that ownership structure is a determinant of earnings management. Institutional presence and foreign owner-

Table 3. Robustness analysis

Variable	M1	M2	M3	M4	M5	M6	M7
AGE	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.5611)	(0.4420)	(0.5908)	(0.6318)	(0.5296)	(0.5554)	(0.6845)
ACI	−0.0299*	−0.0229	−0.0315**	−0.0303*	−0.0306**	−0.0304**	−0.0330**
	(0.0533)	(0.1104)	(0.0416)	(0.0635)	(0.0469)	(0.0442)	(0.0463)
BM	−0.0206	−0.0257	−0.0202	−0.0199	−0.0206	−0.0187	−0.0163
	(0.3052)	(0.1908)	(0.3129)	(0.2952)	(0.3052)	(0.3597)	(0.3943)
AQ	0.1388***	0.1695***	0.1473***	0.1593***	0.1414***	0.1468***	0.1698***
	(0.0088)	(0.0012)	(0.0061)	(0.0071)	(0.0075)	(0.0052)	(0.0045)
ACM	0.0250	0.0631	−0.0068	−0.0299	0.0267	−0.0009	−0.0027
	(0.7150)	(0.3303)	(0.9230)	(0.7226)	(0.6967)	(0.9899)	(0.9699)
IO		−0.2477***					
		(0.0012)					
FO			−0.1024**				
			(0.0489)				
FA				0.0830*			
				(0.0765)			
SO					−0.1201		
					(0.3016)		
OC						0.1773	
						(0.2443)	
MO							0.1815**
							(0.0364)
Constant	−0.1445*	−0.1335*	−0.1117	−0.1425*	−0.1467*	−0.2282**	−0.1789**
	(0.0524)	(0.0719)	(0.1507)	(0.0542)	(0.0502)	(0.0289)	(0.0172)
N	170	170	170	170	170	170	170
VIF	1.080	1.110	1.120	1.100	1.080	1.090	1.110
AIC	167.478	167.801	169.152	169.393	169.300	168.519	169.456
BIC	186.293	189.752	191.103	191.344	191.251	190.470	191.407

Note: Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01.

ship constitute a higher ownership structure that is directly related to lower earnings management because such entities are less likely to make earnings adjustments. However, family and higher managerial ownership constitute higher ownership that is likely to make earnings adjustments, which is directly related to higher earnings manipulation activities in such ownership structures. State ownership and single dominant ownership have an influence that is not uniformly supported by either the main or robustness results. Overall, results form a clear framework in which certain ownership structures are directly related to low earnings management, while others are associated with high discretionary adjustments.

Based on the empirical results reported in Table 2 and confirmed by the robustness analysis presented in Table 3, the hypotheses related to ownership structure can be clearly evaluated. The hypothesis predicting a negative relationship between institutional ownership and discretionary accruals is supported. Likewise, the hypothesis proposing a negative association between foreign ownership and earnings management is also supported. The hypothesis suggesting a positive relationship between family ownership and discretionary accruals is supported as well. Similarly, the hypothesis related to managerial ownership is confirmed, as managerial ownership is positively and statistically significantly associated with discretionary accruals.

In contrast, the hypothesis concerning ownership concentration is rejected due to the absence of statistically significant effects across all model specifications. Finally, the hypothesis related to state ownership receives partial support, as its negative effect is significant only in the baseline model and is not confirmed in the robustness analysis.

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4. DISCUSSION

Our analysis indicates that an increased number of institutions that own a company's stock is a factor that relates to lower earnings management, which means that institutions constitute a preventive factor against opportunistic actions that are exhibited by a company's management team. This is because institutions have expertise in finance as well as a long-term orientation when it comes to making investment decisions. At this stage, they are more cautious when it comes to trusting or being misled by disclosures pertaining to a company in the market, including accounting disclosures. This resonates with the above assertion that institutional investors play an active role in keeping an eye on market participants such as companies, as illustrated by Al-Matari (2025).

Similarly, Nguyen et al. (2020) and Hieu and Anh (2023) indicate that these types of investors ensure that a firm's operations become transparent so that managerial manipulations of figures and data are prevented as well. In a broader sense, this supports the agency theory as it recognizes that institutions work as a preventive element against opportunistic actions carried out by agents of a firm, which helps align managers' actions with shareholders' interests (Jensen & Meckling, 1976).

On a related note, regarding ownership by foreigners, our findings show a negative and significant relationship with earnings management. This indicates that when a firm is owned by foreigners, it is less likely to manipulate its earnings. This is supported by findings that showed similar results in Saudi Arabia by Al-Matari (2025), Palestine by Saleh and Mansour (2024), and Vietnam by Tran et al. (2023). These studies suggest that foreigners exert influence on firms that have good governance structures, a demand for more transparency, and control systems that are more effective. This is because they exert influence on firms, making it more difficult for its firm's managers to act in an opportunist manner.

In other words, having foreign investors involved limits how much freedom top managers have and stimulates more careful accounting that matches international norms. On the flip side, family ownership has a positive relationship with earnings management. This is because family-owned firms have a greater tendency to manipulate their earnings. This is supported by findings that showed similar results in various countries by Murni et al. (2023) and Setiawan et al. (2020), suggesting that family-owned companies often engage in protecting their reputation, keeping control in the family, and pursuing internal goals, which can increase opportunistic behavior, especially when firms lack external monitoring.

Likewise, we found that managerial ownership is positively and significantly associated with earnings management. Managers who own shares of their companies appear more likely to manipulate financial information for their own purposes. This supports the findings of Al-Matari (2025) and Yahaya (2025), who suggest that managerial ownership could encourage changes in performance, especially if there is little monitoring by independent parties. There is a conflict of interest between majority and minority shareholders, leaving room for managerial opportunistic actions. In a similar vein, our analysis reported that state ownership is negatively and non-significantly associated with earnings management. This supports the study of Arefmanesh & Amozadi Rizi (2020), who found that Iranian state-owned firms avoid excessive use of accounting accruals, like private firms, due to a lack of commercial purposes and stringent regulations. Also, Wang and Yung (2011) suggested that as Chinese state-owned firms enjoy favorable financial and institutional settings, they are under little pressure on performance, and thus lack motivations for managing accounting figures.

Lastly, our results showed that ownership concentration is positively, albeit insignificantly, associated with earnings management, indicating that having majority shareholders is not significant in influencing accounting manipulation practices. This is consistent with the research made by Attia et al. (2023), who, through their research on Egyptian-listed firms, acknowledge that the absence of development regarding institutional environments makes it ineffective for major shareholders to effectively monitor managerial activities. Moreover, this is consistent with the findings of Fera et al. (2022), demonstrating that, in the context of Italian listed companies, capital concentration is inconsequential, as a lack of accountability

is perceived as a constraint on preventing opportunistic behavior. Overall, these studies point towards the ineffectiveness of ownership concentration as a means of preventing earnings management, especially if it's not supported by strong governance systems.

Moreover, based on our analysis, the COVID-19 pandemic and firm size have a negative and significant effect on earnings management, demonstrating that large firms, operating during a pandemic, adopted a prudent behavior towards financial reporting. This is due to market resilience and flexibility towards minimized performances, as well as improved control and regulation policies, eliminating firms' motivations towards accounting tricks and manipulation. In contrast, audit quality and return on assets have a positive and significant effect on earnings management, suggesting that large firms, operating profitably under Big Four audit firms, adopted a behavior towards managing their earnings and providing an even more favorable impression about themselves through creative accounting reporting practices. Finally, our results indicate that growth opportunities demonstrate an insignificant relationship with earnings management, suggesting that growth opportunities are not an effective determinant of firms' behavior towards accounting manipulation, reporting practices, and actions.

CONCLUSION

The aim of this paper was to investigate ownership structure as a determinant of earnings management and to examine the effectiveness of the Moroccan Corporate Governance Code adopted in 2008. To this end, we examined a dataset of 34 non-financial firms over 2018–2022 using the two-step GMM estimator. Discretionary accruals, calculated using the Kothari et al. model, were employed as a proxy of earnings management. Overall, our findings suggest that institutional and foreign ownership decrease the probability of earnings management, while family and managerial ownership increase it. State ownership and ownership concentration show no effect.

This study offers a number of implications for both practice and research. For scholars, it adds to the still limited evidence from North Africa on how different ownership groups behave, and it shows why separating monitoring shareholders from controlling one's matters when trying to understand earnings management. For practitioners, the results suggest that ownership structure can serve as a practical signal of reporting risk. Firms with strong institutional or foreign participation tend to behave more cautiously in their financial reporting, while those dominated by families or managers are more likely to adjust their earnings, which means audits and internal controls need to be tighter in those cases. For policymakers, the findings point to the benefits of encouraging ownership structures that promote discipline in reporting, and of reinforcing oversight when family or managerial control increases the risk of manipulation.

This study also comes with a few limitations. The sample is relatively small, only 34 non-financial listed firms observed over five years, which naturally reduces how far the results can be generalized. It also does not capture informal governance dynamics, such as the way board members interact or the influence of shareholder agreements, even though these factors may shape managerial discretion. And because the analysis focuses solely on Morocco, the results may not fully reflect what happens in other emerging markets. Future work could expand the sample and the time period, include additional measures of earnings management, bring in qualitative governance indicators, and compare Moroccan firms with those in other MENA countries to see whether similar patterns emerge.

AUTHOR CONTRIBUTIONS

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Data curation: Mohammed Amine.

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Project administration: Aymane Chemmaa, Mohammed Ibrahimi.
Software: Aymane Chemmaa.
Supervision: Mohammed Ibrahimi.
Validation: Aymane Chemmaa, Mohammed Ibrahimi.
Visualization: Mohammed Amine.
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APPENDIX A

Table A1. Descriptive statistics

Variable	Mean	Median	Std. Dev.	Kurtosis	Skewness	Min	Max
DA	–0.024	0.000	0.389	62.104	5.568	–0.965	0.630
IO	0.248	0.151	0.241	2.666	0.781	0.000	0.878
FO	0.073	0.000	0.183	11.671	2.994	0.000	0.858
FA	0.471	0.000	0.501	1.014	0.118	0.000	1.000
SO	0.026	0.000	0.091	29.148	4.903	0.000	0.600
OC	0.551	0.524	0.130	2.446	0.218	0.314	0.858
MO	0.188	0.000	0.255	2.968	1.122	0.000	0.858
COV	0.400	0.000	0.491	1.167	0.408	0.000	1.000
FS	9.255	9.386	0.667	2.616	–0.196	7.738	10.618
ROA	0.061	0.060	0.070	7.038	–0.024	–0.195	0.242
GO	0.045	0.045	0.214	5.655	–0.380	–0.649	0.783
AQ	0.706	1.000	0.457	1.817	–0.904	0.000	1.000

Table A2. Correlation matrix – Core analysis

Variable	1	2	3	4	5	6	7	8	9	10	11	VIF
1 IO	1.000											1.620
2 FO	–0.254	1.000										1.610
3 FA	0.170	–0.340	1.000									1.500
4 SO	–0.040	0.049	–0.091	1.000								1.460
5 OC	–0.320	0.203	–0.030	–0.243	1.000							1.400
6 MO	–0.217	0.221	0.316	–0.204	0.371	1.000						1.310
7 COV	–0.012	0.006	0.000	–0.010	0.000	0.000	1.000					1.280
8 FS	0.168	0.264	0.016	0.148	0.133	0.064	0.019	1.000				1.230
9 ROA	–0.129	0.201	0.020	0.185	0.064	0.002	–0.092	0.141	1.000			1.150
10 GO	–0.064	0.115	0.013	–0.046	0.082	0.098	–0.117	0.014	0.112	1.000		1.050
11 AQ	0.279	0.130	–0.167	0.110	–0.106	–0.274	0.000	0.245	0.006	–0.034	1.000	1.020

Table A3. Correlation matrix – Robustness analysis

Variable	1	2	3	4	5	6	7	8	9	10	11	VIF
1 IO	1.000											1.660
2 FO	–0.254	1.000										1.550
3 FA	0.170	–0.340	1.000									1.470
4 SO	–0.040	–0.049	–0.091	1.000								1.440
5 OC	–0.040	0.203	0.316	–0.243	1.000							1.420
6 MO	–0.217	0.221	0.316	–0.204	0.371	1.000						1.410
7 AGE	–0.012	0.005	0.000	–0.010	0.000	0.000	1.000					1.340
8 ACI	0.168	0.264	0.016	0.148	0.133	0.064	0.019	1.000				1.150
9 BM	–0.129	0.201	0.019	0.185	0.063	0.001	–0.092	0.141	1.000			1.150
10 AQ	–0.064	0.114	0.012	–0.046	0.082	0.098	–0.117	0.014	0.112	1.000		1.110
11 ACM	0.279	0.129	–0.167	0.109	–0.106	–0.274	0.000	0.245	0.006	–0.034	1.000	1.090

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