

THE IMPACT OF OWNERSHIP TYPE ON THE RELATIONSHIP BETWEEN CORPORATE GOVERNANCE AND EARNINGS MANAGEMENT: AN EMPIRICAL STUDY

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Abstract

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This study investigates the effect of ownership type on the relation between corporate governance and earnings management. While previous literature has mainly examined the relationship between corporate governance and both accrual and real earnings management, no study to date, to the researcher's best knowledge, focused on the moderation effect of ownership type on this relationship. Three proxies for measuring accrual and real earnings management, namely discretionary accruals (DA), abnormal cash flows (ACFO), and abnormal discretionary expenses (ADISX) are employed. Three empirical models (i.e. DA, ACFO, and ADISX) are developed in which the earnings management proxies represent the dependent variables and are tested using a sample of non-financial companies containing state-owned and privately owned companies over the period from 2010 to 2017, with 1030 firm-year observations. The results show a positive relationship between ownership type and both accruals manipulation and sales manipulation. In general, the results suggest that the ownership type moderates the relationship between corporate governance and earnings management. The results suggest also that corporate governance mechanisms may not play an almost the same role in monitoring and mitigating real earnings management (REM) practices as they do for accrual earnings management (AEM) in Egypt. Moreover, no evidence is found supportive of the trade-off effect which means that managers in Egyptian firms use both types of earnings management jointly to reach the target levels of earnings.

Keywords: Ownership Type, Corporate Governance, Accrual Earnings Management, Real Earnings Management

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1. INTRODUCTION

Agency theory predicts that firms that are suffering from pronounced agency conflicts are engaged in

opportunistic practices (Jensen & Meckling, 1976). In addition, previous literature proposes that ownership structure and corporate governance mechanisms can successfully align the interests of

managers with those of the stockholders and effectively monitor the opportunistic behavior of management (Fama & Jensen, 1983; Shleifer & Vishny, 1997). These predictions are examined in developed markets (Klein, 2002; Xie et al., 2003; Davidson et al., 2005; Peasnell et al., 2005). However, institutional environments, for example, ownership structure and oversight bodies vary throughout the world, and therefore, the sustainability of these predictions may also vary. Further, prior research lacks on the empirical investigation on the relationship between corporate governance and both accrual-based earnings management (AEM) and real activities earnings management (REM) in settings like Egypt with a concentration of ownership, weak investor protection, and an emerging capital market. This study, therefore, examines these issues and validates the agency theory predictions regarding the effectiveness of corporate governance mechanisms in mitigating both types of earnings management (i.e. AEM and REM) in Egypt. Additionally, this study examines the effect of ownership type (i.e. state-owned and privately owned) on the relationship between corporate governance and both types of earnings management. Consequently, the problem of this study can be summarized as follows: *Does ownership type moderate the relationship between corporate governance mechanisms and both types of earnings management?*

While there is extensive literature on the impact of corporate governance on AEM, the impact of corporate governance on REM has rarely been explored so far, especially in Egypt. This study attempts to fill the gap in the literature by investigating the role of corporate governance in mitigating the REM practices in Egypt. Zang (2012) argues that previous research, which studies only one type of earnings management, can lead to inconclusive results about the whole effect of earnings management activities. In the same vein, this study investigates the effect of corporate governance mechanisms on accrual and real activities earnings management in order to provide more reliable conclusions. Accordingly, to the best of the researcher's knowledge, this study is the first to comprehensively examine the effectiveness of corporate governance in deterring both types of earnings management in Egypt. To the best of the researcher's knowledge, the uniqueness of this study over other studies is that the moderation effect of ownership type on the relation between corporate governance and earnings management has not been examined in the past by prior research. This study examines the effect of ownership type to differentiate between the nature of this relationship in state-owned companies (SOEs) compared with privately-owned companies (POEs). The current study contributes to the ongoing earnings management literature by investigating the trade-off effect between the accrual and real activities earnings management in Egypt by employing the model developed in Zang (2012) that is based on costs associated with each type of manipulation. Therefore, with little research investigating this issue in the US, this research is the first, to the best of the researcher's knowledge, to employ this model in Egypt.

The rest of this paper is organized as follows: Section 2 provides the literature review and

hypothesis development. Section 3 presents the research methodology. Section 4 discusses the empirical results. Section 5 provides the conclusion.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Corporate governance and AEM

Based on agency theory, in order to minimize the opportunistic behaviors of agents and protecting the principals' interests, the principal could establish appropriate incentive systems for the agents and incur monitoring costs that are designed to restrict the agents' behavior, such as the costs of external auditors and the board of directors (Jensen & Meckling, 1976). One significant monitoring system is corporate governance. Specifically, the board, the audit committee, and ownership structure play a crucial role in reducing the agent-principal conflict. From the agency's perspective, there are several characteristics of board and audit committee (e.g. size, independence, and expertise) as well as characteristics of ownership structure (e.g. ownership concentration) that enhance the effective monitoring function. Accordingly, in theory, the mechanisms of corporate governance as essential monitoring devices should have a mitigating effect on earnings management.

However, the findings of prior empirical studies for the effect of corporate governance factors on earnings management are mixed. Beginning with AEM, a large number of studies provide evidence supportive of firms with independent directors on boards and audit committees are less likely to engage in AEM (Klein, 2002; Xie et al., 2003; Davidson et al., 2005; Peasnell et al., 2005; Kent et al., 2010; Marra et al., 2011; Chen & Zhang, 2014; Bajra & Cadez, 2018). While there are studies arguing to the contrary because of the lack of relevant expertise and non-involvement in the company's activities. Park and Shin (2004); Piot and Janin (2005); Bradbury et al. (2006); Osmá and Noguera (2007); Siregar and Utama (2008); Hsu and Wen (2015); Katmon and Al Farooque (2017) fail to report any association between earnings management and board independence.

In the Egyptian context, a number of studies examined the role of corporate governance in constraining the AEM. For example, Ali and Desoky (2015) use 634 Egyptian firm-year observations from 2003 to 2010 to investigate the role of the Egyptian Code of corporate governance in mitigating opportunistic earnings management. The results show that the adoption of the Egyptian Code of corporate governance generally reduces the earnings management practices and thus enhancing the earnings quality of Egyptian listed companies. Specifically, board shareholding, board independence and audit committee are the only mechanisms that are significantly associated with earnings quality. A study conducted by Soliman and Ragab (2013) finds that AEM is correlated positively with the CEO duality and negatively with the board size. It also concludes that there is no relationship between AEM and independent board members. Afify (2013) find a positive relationship between ownership concentration and AEM in Egyptian companies. In addition, Khalil and Ozkan (2016)

conclude that the role of board independence in reducing opportunistic earnings management is likely to be dependent on the levels of managerial and large shareholders' ownership. The study attributes this to the fact that large shareholders and managers are trying to show their commitment to good corporate governance practices for the general public, including the appointment of more external members on the board.

Overall, a considerable number of studies examined the relationship between corporate governance mechanisms and AEM. However, a little number of studies examined this relationship for SOEs. There is a need to do this because of the special nature of agency relationships and agency problems in such firms (Li et al., 2011) and the existence of a reasonable number of SOEs in Egypt. Ismail et al. (2009) investigated the impact of the Malaysian Corporate Governance code on the earnings quality measured by discretionary accruals. Using 1,625 firm-year observations during the period 2003-2007, they find only the board and audit committee size are positively correlated with earnings quality for the full sample. But in SOEs, only the size of the board is influential for earnings quality due to the severity of agency problems. Yang et al. (2010) highlighted that the SOEs in China are more likely to smooth income and corporate governance mechanisms are not effective to alleviate it.

Hwang et al. (2010) examined the relationship between corporate governance mechanisms and earnings management for the listed firms in China during the period of 2001-2007 and found that the board size and independence are negatively associated with earnings management for the SOEs, but their impact becomes minimal for the POEs. Furthermore, both ownership concentration and CEO duality have a positive impact on earnings management for the SOEs, and insignificant for the POEs. In a similar vein, Chen and Zhang (2014) investigated the impact of corporate governance on earnings manipulations and found that, in general, the corporate governance played an important role in reducing earnings management through non-executive board members, audit committee and financial expertise for the audit committees' members. But this effect was minimal when the firms were owned by the state.

In Egypt, the capital market is considered as an emerging one which is characterized by regulatory inefficiency, lack of transparency, and weak investors' protection (ROSC, 2009). Also, prior research in Egypt suggests that both the SOEs and POEs operate in the same institutional environment. However, it is more difficult to address the agency problem in the SOEs than in the privately-owned ones because of the extra agency relationship in SOEs. Moreover, SOEs may be characterized by poor governance and performance than POEs due to several reasons; the objective function for a SOE may be entirely different from that of a POE, political interference, over-employment, the lack of market-driven monitoring (such as takeover threats), unprofessional board of directors and the control by bureaucrats who do not have the incentives to reduce costs and/or improve quality and performance (Nguyen, 2009; Jidong & Liyan, 2010; Kamal, 2010).

Therefore, it is predicted that the differentiation between SOEs and POEs in studying the relationship between corporate governance and earnings management is more meaningful than otherwise. Although Egypt has issued the first Egyptian Corporate Governance Code in 2005, its adoption is still voluntary. This voluntary adoption, along with the absence of law enforcement and relatively weak investor's protection, might induce managers to manipulate earnings opportunistically. Since the Egyptian Code of Corporate Governance for SOEs was issued in October 2006, studies, to the researcher's best knowledge, which examined the effectiveness of corporate governance for the public sector in restricting the earnings manipulation are rare. Moreover, prior studies on the effect of corporate governance on the AEM, either in Egypt or in other environments, did not control for the possible trade-off between AEM and REM as indicated by Zang (2012).

Although this study follows the predictions of agency theory and the Egyptian Code of corporate governance in proposing the different outcomes for the individual variables within corporate governance, the aforementioned discussion shows that studies have not reached a consensus on the effect of corporate governance mechanisms on the AEM as well as the effectiveness of corporate governance in the SOEs. Consequently, the hypotheses can be formed in the null form as follows:

H1: There is no relationship between ownership type and AEM.

H2: The relationship between individual ownership concentration and AEM doesn't depend on ownership type.

H3: The relationship between board size and AEM doesn't depend on the ownership type.

H4: The relationship between independent board members and AEM doesn't depend on the ownership type.

H5: The relationship between CEO duality and AEM doesn't depend on the ownership type.

H6: The relationship between audit committee size and AEM doesn't depend on ownership type.

H7: The relationship between independent audit committee members and AEM doesn't depend on the ownership type.

H8: The relationship between financial expertise of audit committee members and AEM doesn't depend on ownership type.

H9: The relationship between the number of audit committee meetings and AEM doesn't depend on the ownership type.

2.2. Corporate governance and REM

Despite the extensive evidence on the role of corporate governance mechanisms in limiting the AEM practices, a little research has questioned the role of corporate governance mechanisms in constraining REM (Visvanathan, 2008; Kang & Kim, 2011; Martinez, 2011; Kang & Kim, 2012). Furthermore, the results of such studies are mixed. Kang and Kim (2011) find that a well-established governance system can mitigate the REM practices. Using a sample of 6,759 firm-years, Visvanathan (2008) examines the impact of several board and audit committee characteristics on REM. The results show only independent board members are

influential in constraining REM, while the other characteristics of the board and the audit committee that have been found to be significant in limiting AEM have no effect in limiting REM, because most members may primarily focus upon accrual-type earnings management. However, Kang and Kim (2012) find that the board size in addition to the non-executive directors is negatively associated with REM. Similarly, Hashemi and Rabiee (2011) use 1,398 firm-year observations and find that a higher percentage of independent directors and larger board size appear to be more effective in terms of reducing REM.

Malik (2011) employs a sample of 7,852 fiscal quarters of publicly-traded U.S. firms and find that the board may not play any significant role to limit REM. Using 11,604 Chinese firm-year observations over the period 2002-2012, Hsu and Wen (2015) conclude that the board size and managerial ownership are negatively associated with REM while ownership concentration has a positive relationship with REM. The results show also the CEO duality and independent directors are ineffective in constraining REM practices. Regarding the financial expertise of audit committee members, Carcello et al. (2006) and Sun et al. (2014) find an insignificant effect on REM.

In addition to the little number of studies examined the relationship between corporate governance mechanisms and REM, to the researcher's best knowledge, there is no study examined the moderation effect of ownership type on this relationship. Also, the prior research on the effect of corporate governance on the REM, either in Egypt or in other environments, did not control for the possible substitutive effect between AEM and REM. In Egypt, to the researcher's best knowledge, no study examined the effect of corporate governance mechanisms in constraining the REM in both SOEs and POEs. Due to the inconsistent findings for the effect of corporate governance mechanisms on REM as well as the absence of any

study examining this relationship in SOEs; the hypotheses can be formed in the null form as follows:

H10: There is no relationship between ownership type and REM.

H11: The relationship between individual ownership concentration and REM doesn't depend on ownership type.

H12: The relationship between board size and REM doesn't depend on the ownership type.

H13: The relationship between independent board members and REM doesn't depend on the ownership type.

H14: The relationship between CEO duality and REM doesn't depend on the ownership type.

H15: The relationship between audit committee size and REM doesn't depend on ownership type.

H16: The relationship between independent audit committee members and REM doesn't depend on the ownership type.

H17: The relationship between financial expertise of audit committee members and REM doesn't depend on ownership type.

H18: The relationship between the number of audit committee meetings and REM doesn't depend on the ownership type.

3. METHODOLOGY

3.1. Study population and sample

A convenience sample of non-financial companies containing state-owned and privately owned companies over the period from 2010-2017, with 1030 firm-year observations, is selected. All firms drawn from the population should have been registered in the security exchange market during the period 2010-2017. Table 1 shows the percentage of the sample size to the population.

Table 1. The percentage of sample size to the population

Year	2010	2011	2012	2013	2014	2015	2016	2017	Total
Total Egyptian companies listed on Egyptian stock exchange	212	213	213	212	214	221	222	222	1729
(Less)number of companies within the banking and financial sectors	(42)	(41)	(38)	(38)	(38)	(43)	(46)	(47)	(333)
Number of non-financial companies (the population)	170	172	175	174	176	178	176	175	1396
Number of companies within the sample	129	128	128	129	130	129	129	128	1030
Percentage of sample companies to population	76%	74%	73%	74%	74%	72%	73%	73%	74%

3.2. Empirical research models

Two main regression models are developed in the current study to test the research hypotheses for one group sample containing state-owned and privately owned Egyptian companies listed in the Egyptian stock exchange for the period of 2010-2017. In the first model (Model 1), different

proxies of REM are regressed against ownership type, corporate governance mechanisms, and control variables. In the second model (Model 2), discretionary accruals (DA) as a proxy for AEM is regressed against ownership type, corporate governance mechanisms, and control variables. Therefore, the empirical research models can be presented symbolically as follows:

Model 1

$$REM_{i,t} = \beta_0 + \beta_1 OWNT_{i,t} + \sum_{i=1}^8 \theta CGM_{i,t} + \sum_{i=1}^8 \alpha OWNT_{i,t} \times CGM_{i,t} + \beta_2 PreEar_{i,t} + \sum_{i=1}^{10} \mu CTRLS_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where, $REM_{i,t}$ = real earnings management for the company (i) at time (t), measured by two different proxies (abnormal cash flow from operations (ACFO), and abnormal discretionary expenses (ADISX)); $OWN_{i,t}$ = ownership type; $CGM_{i,t}$ = corporate governance mechanisms (individual ownership concentration, board size,

board independence, CEO duality, audit committee size, audit committee independence, number of meetings and financial expertise for audit committee members); $PreEar_{i,t}$ = pre-managed earnings; $CTRLS_{i,t}$ = control variables (includes substitution control variables and firm characteristics variables); $\alpha, \theta, \mu, \beta$ = regression coefficients; $\varepsilon_{i,t}$ = error.

Model 2

$$DA_{i,t} = \beta_0 + \beta_1 OWN_{i,t} + \sum_{i=1}^8 \theta CGM_{i,t} + \sum_{i=1}^8 \alpha OWN_{i,t} \times CGM_{i,t} + \beta_2 UexpREM_{i,t} + \beta_3 REMest_{i,t} + \sum_{i=1}^{10} \mu CTRLS_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where, $DA_{i,t}$ = discretionary accruals for company (i) at time (t); $UexpREM_{i,t}$ = unexpected level of REM; $REMest_{i,t}$ = predicted REM.

3.3. Variables measurement

3.3.1. Accrual earnings management (AEM)

DA is used as a proxy to measure AEM by the modified Jones model of Dechow et al. (1995) where the model is estimated cross-sectional. Dechow et al. (1995) estimate the modified version of Jones (1991) model to estimate DA as the residual from the following model:

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta_1 (1/TA_{i,t-1}) + \beta_2 (\Delta REV_{i,t} - \Delta REC_{i,t}/TA_{i,t-1}) + \beta_3 (PPE_{i,t}/TA_{i,t-1}) + \varepsilon_{i,t} \quad (3)$$

Where, for fiscal year t and firm i , TAC represents total accruals which calculated by the difference between the earnings before extraordinary items and discontinued operations and operating cash flows. $TA_{i,t-1}$ = total assets at the end of the previous fiscal year ($t-1$) for the company (i). $\Delta REV_{i,t}$ = the change in revenues from the preceding year for the company (i). $PPE_{i,t}$ = property plant & Equipment at year (t) for the company (i). $\Delta REC_{i,t}$ = the change in net receivables from the preceding year.

3.3.2. Real activity earnings management (REM)

ACFO and ADISX are used as proxies for measuring real activity earnings manipulation as described by Roychowdhury (2006). These proxies are used by most researchers such as Gunny (2005), Cohen et al. (2008), In order to estimate sales manipulation, Roychowdhury (2006) estimates the normal level of CFO as a linear function of sales and change in sales in the same year using the following cross-sectional regression model for each year and industry.

$$\frac{CFO_t}{TA_{t-1}} = \beta_1 (1/TA_{t-1}) + \beta_2 (S_t/TA_{t-1}) + \beta_3 (\Delta S_t/TA_{t-1}) + \varepsilon_t \quad (4)$$

Where, CFO_t = cash flow from operation; TA_{t-1} = total assets at the beginning of period t ; S_t = sales of period t .

The ACFO (the first proxy for REM) is estimated from the residual from Equation (4). The normal level of the sum of discretionary expenses is estimated by Roychowdhury (2006) using a cross-sectional regression for each year and industry as follows:

$$\frac{DISX_t}{TA_{t-1}} = \beta_1 (1/TA_{t-1}) + \beta_2 (S_{t-1}/TA_{t-1}) + \varepsilon_t \quad (5)$$

Where, $DISX_t$ = discretionary expenses including selling, general and administrative expenses, R&D, and advertising for the firm.

For every firm-year, the abnormal discretionary expenses (ADISX) are estimated by the residual from Equation (5). According to the above proxies of REM, the main hypotheses from 10 to 18 presented in Section 3.2. are divided into eighteen subhypotheses, each main hypothesis is divided into two subhypotheses. Figure 1 illustrates the general framework for the study hypotheses by presenting the main effects of corporate governance mechanisms on earnings management types and the moderating effect of ownership type in addition to control variables.

3.3.3. Independent variables and moderator variable

Corporate governance mechanisms would be measured in Table 2.

Ownership type is measured as (1), if the percentage of state ownership exceeds 50% (SOE), and (0) otherwise (POE).

Table 2. Measurement of independent variables

Independent variable	Measurement
Individual ownership concentration (INDCON)	Total individual ownership of 5% or more from the total number of shares.
Board size (BODSZ)	The number of members of the Board of Directors.
Board independence (BODIND)	The proportion of non-executive directors on the board.
CEO duality (DUAL)	(1) if the CEO is the chairman of the board of directors, (0) otherwise.
Audit committee size (AUDSZ)	The number of audit committee members.
Audit committee independence (AUDIND)	The proportion of non-executive members on the audit committee.
Financial expertise of audit committee members (AUDEXP)	The proportion of audit committee members with accounting and financial qualification to the total number of audit committee members.
Audit committee meetings (No.meets.)	The number of audit committee meetings during the year.

3.3.4. Substitution control variables

Following prior studies (Zang, 2012; Gao et al., 2017; Sakaki & Jackson, 2017; Alhadab & Nguyen, 2018), in order to control for the trade-off between different earnings management types, six control variables are added to the study models as follows:

- *Market share* ($Mktsh_{i,t-1}$), is used as a proxy for the level of competition. It is measured as the ratio of a company's sales to total sales of its sector.

- *Institutional ownership* ($INST_{i,t-1}$), is measured as the percentage of outstanding shares owned by institutional investors.

- *Auditor scrutiny* ($Big 4_{i,t}$), is used as a proxy for the auditor scrutiny. It is a dummy variable that equals (1) if the auditor is one of the big four audit firms and (0) otherwise.

- *Audit tenure* ($Audten_{i,t}$), is used as another proxy for the auditor scrutiny. It is a dummy variable that equals (1) if a firm is audited by the same auditor for a period more than or equal to the sample median and (0) otherwise.

- *Length of operating cycle* ($OCycle_{i,t-1}$), is used as a proxy for firms' accounting flexibility. It is measured as receivable turnover in days plus inventory turnover in days at the beginning of the year: $365 / (Sales / Average Accounts Receivable) + 365 / (Cost of Goods Sold / Average Inventory)$.

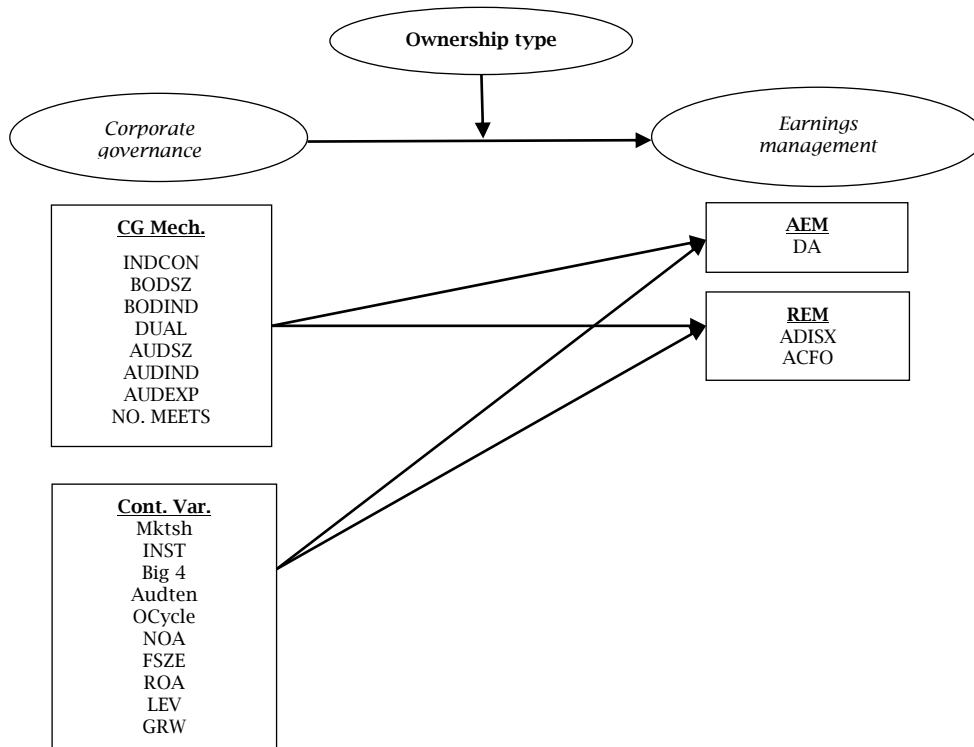
- *Net operating assets* ($NOA_{i,t-1}$), are used as a proxy for the extent of AEM in prior periods. It is measured as shareholders' equity less cash and marketable securities and total debt at the beginning of the year divided by total assets at the year beginning.

Following Hunt et al. (1996) and Zang (2012), pre-managed earnings ($PreEar.$) is included in the REM model (Equation (1)) to control for manipulating earnings upwards. Also, in the AEM model (Equation (2)), the estimated value of REM from Equation (1) ($REMest.$) is included to control for the level of income-increasing earnings management activities. Finally, in order to control for the sequential order between different earnings management types, the unexpected level of REM ($UexpREM_{i,t}$) is added when the AEM proxy is a dependent variable in Equation (2). It is computed as the estimated residuals from Equation (1).

3.3.5. Firm characteristics control variables

In accordance with most of prior earnings management studies, firm size ($FSZE_{i,t}$), firm performance ($ROA_{i,t}$), leverage ($LEV_{i,t}$), and firm growth ($GRW_{i,t}$) are added as corporate characteristics control variables to the study models.

Figure 1. General framework for the study hypotheses



4. EMPIRICAL RESULTS

4.1. Descriptive statistics

Table 3 presents descriptive statistics for the full sample of 1,030 firm-year observations. Approximately 31% of the sample firm-year observations are state-owned (323 observations) and

the rest (707 observations) represent private sector companies. The descriptive statistics for the full sample are shown in Table 3. Tables 4 and 5, respectively, show descriptive statistics of SOEs and POEs subsamples. In order to avoid the influence of outliers, all continuous control variables are winsorized at the top 5% and the bottom 95% percentiles of their distribution.

Table 3. Descriptive statistics for the full sample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	.000	.106	-.882	.593	-.048	-.002	.047
ACFO	-.001	.108	-.542	.521	-.046	.0001	.044
ADISX	.000	.040	-.239	.167	-.011	.003	.018
INDCON	.095	.178	.000	.900	.000	.000	.104
BODSZ	7.820	2.771	1.0	17.0	5.0	7.0	9.0
BODIND	.660	.241	.000	1.000	.500	.727	.857
AUDSZ	3.417	1.004	.000	8.0	3.0	3.0	4.0
AUDIND	.887	.221	.000	1.000	.800	1.000	1.000
AUDEXP	.470	.308	.000	1.000	.333	.400	.667
No. meets.	5.109	3.531	.000	40.0	4.0	4.0	4.0
Mktsh	0.072	0.129	0.001	0.488	0.007	0.022	0.063
INST	0.571	0.313	0.000	0.957	0.323	0.638	0.860
Logocycle	2.290	0.783	-3.702	4.681	1.982	2.284	2.569
NOA	0.582	0.238	0.110	0.907	0.402	0.624	0.781
FSZE	20.201	1.339	17.938	22.798	19.252	20.085	21.179
ROA	0.063	0.087	-0.095	0.261	0.007	0.051	0.112
LEV	0.125	0.155	0.000	0.498	0.000	0.056	0.211
GRW	1.427	1.006	0.081	3.506	0.526	1.304	2.156
PreEar.	0.061	0.080	-0.090	0.218	0.006	0.058	0.115

Note: Dummy variables: Dual = 1(CEO-Chairman duality): 70 %, Big 4 = 1: 33 % and Audten = 1: 49 %.

Table 4. Descriptive statistics for the state-owned subsample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	-.002	.090	-.363	.348	-.045	-.003	.049
ACFO	-.014	.108	-.542	.393	-.055	-.006	.029
ADISX	.001	.040	-.191	.115	-.009	.005	.021
INDCON	.016	.037	.000	.210	.000	.000	.000
BODSZ	7.5	2.9	1.0	16.0	5.0	7.0	9.0
BODIND	.542	.307	.000	1.000	.286	.500	.857
AUDSZ	3.7	1.3	.0	8.0	3.0	3.0	4.0
AUDIND	.817	.278	.000	1.000	.750	1.000	1.000
AUDEXP	.626	.268	.000	1.000	.333	.667	.800
No. meets.	6.5	3.6	.0	15.0	4.0	4.0	10.0
Mktsh	0.109	0.164	0.001	0.488	0.013	0.034	0.082
INST	0.776	0.140	0.000	0.957	0.694	0.772	0.910
Logocycle	2.331	0.609	0.601	4.642	2.058	2.345	2.512
NOA	0.464	0.244	0.110	0.907	0.254	0.450	0.666
FSZE	20.554	1.169	17.938	22.798	19.617	20.350	21.480
ROA	0.071	0.093	-0.095	0.261	0.014	0.064	0.119
LEV	0.096	0.140	0.000	0.498	0.000	0.020	0.139
GRW	1.784	1.042	0.081	3.506	1.059	1.733	2.571
PreEar.	0.059	0.080	-0.090	0.218	0.008	0.058	0.107

Note: Dummy variables: Dual = 1(CEO-Chairman duality): 92.3 %, Big 4 = 1: 15.2 %, and Audten = 1: 77.7 %.

Table 5. Descriptive statistics for the privately-owned subsample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	.001	.112	-.882	.593	-.051	-.002	.047
ACFO	.005	.108	-.511	.521	-.043	.003	.051
ADISX	.000	.039	-.239	.167	-.013	.002	.017
INDCON	.131	.203	.000	.900	.000	.000	.211
BODSZ	8.0	2.7	3.0	17.0	6.0	8.0	9.0
BODIND	.714	.180	.000	1.000	.600	.750	.857
AUDSZ	3.266	.821	.000	7.000	3.000	3.000	3.000
AUDIND	.919	.180	.000	1.000	1.000	1.000	1.000
AUDEXP	.399	.299	.000	1.000	.250	.333	.667
No. meets.	4.5	3.3	.0	40.0	4.0	4.0	4.0
Mktsh	0.056	0.105	0.001	0.488	0.005	0.017	0.052
INST	0.477	0.326	0.000	0.957	0.205	0.506	0.792
Logocycle	2.271	0.850	-3.702	4.681	1.969	2.242	2.614
NOA	0.635	0.215	0.110	0.907	0.489	0.684	0.806
FSZE	20.039	1.381	17.938	22.798	18.973	19.979	20.937
ROA	0.060	0.085	-0.095	0.261	0.005	0.045	0.105
LEV	0.139	0.159	0.000	0.498	0.000	0.072	0.242
GRW	1.264	0.946	0.081	3.506	0.420	1.109	1.899
PreEar.	0.062	0.080	-0.090	0.218	0.005	0.058	0.119

Note: Dummy variables: Dual = 1(CEO-Chairman duality): 59.8 %, Big 4 = 1: 41.0 %, and Audten = 1: 35.8 %.

The median (mean) of DA in Egyptian companies is -0.2% (0.000) and falls between -88.2% and 59.3% of total assets. This implies that AEM in Egypt is more severe than in other countries such as the USA based on Xie et al. (2003) who find that DA

in USA fall between -27% and 67% of total assets. Also in China, Cheng et al. (2015) find that DA fall between -22% and 40% of total assets. The average percentage of DA for SOEs is -0.2 % with a range between -36 % and 35 % of total assets, which is less

than POEs, which is 0.1 % with a range between -88 % and 59 % of total assets.

The median of ACFO in Egypt is 0.01% of total assets which is far less than the 1% found by Cohen et al. (2008) in their USA sample and more than the -0.2% reported by Kuo et al. (2014) in China. The median of ACFO for SOEs is -0.6%, lower than that for non-state-owned companies, which is 0.3%. Median of ADISX in Egypt is 0.3% of total assets which is close to that found in the USA by Huang and Sun (2017) (i.e. 0.6%) and higher than the -1.4% found by Kuo et al. (2014) in China. For the SOEs, the median of ADISX is 0.5% of total assets which is higher than that for non-state-owned companies, which is 0.2%.

With respect to the ownership structure in Egyptian firms, the descriptive statistics indicate that the individual ownership concentration (INDCON) ranges from 0% to 90% with a mean of 9.5%, and mean institutional ownership (INST) of 57.2%. In the SOEs, the mean individual ownership concentration in SOEs is 1.6 % while it is 13.1 % in POEs.

Regarding corporate governance mechanisms, descriptive statistics indicate that the average size of the BOD and the Audit Committee in the Egyptian companies is about 8 and 3 members, respectively, with a range between 1 and 17 for the BOD and 0 and 8 for the audit committees, and there is no significant difference between the state-owned and privately-owned companies. This implies that there are some companies do not have an audit committee. The mean value (66%) of board independence (BODIND) indicates that Egyptian firms have complied with the recommendation of the Egyptian corporate governance code to have the majority of the BOD comprising independent non-executive directors. Also, about 89% of audit committee members are non-executive directors (AUDIND) and 47% have financial expertise (AUDEXP). For the SOEs, the audit committee includes 81.7% of its members as non-executive directors and 62.6 % have financial expertise. In POEs, about 91.9 % of audit committee members are outside directors and nearly 40 % have financial expertise.

In general, there is a high degree of compliance with the Egyptian corporate governance rules of the audit committees and the board of directors. However, the minimum zero values of both BODIND and AUDIND indicate the non-presence of independent directors on the board and on the audit committee in some SOEs and POEs. Although the Egyptian Corporate Governance code recommends the separation between the position of chairman and chief executive officer position in the company, almost 70% of Egyptian companies have duality. For the SOEs, 92% have duality while 60% of the private-sector companies have duality. This means that public sector companies are less committed to the rules of governance. As to control variables, it is noted that the mean debt-to-asset ratio (LEV) is higher for POEs (13.9%) than for SOEs (9.6%). On the other hand, the average return on asset ratio (ROA) for SOEs (7.1%) is higher than that for POEs (6.0%). As to the rest of the control variables, no significant difference between the public and private sector companies is noticed.

4.2. Multiple regression

In order to test the research hypotheses concerning the effect of ownership type on the relationship between corporate governance mechanisms and earnings management proxies (i.e. dependent variables), three empirical regression models are conducted for each dependent variable (i.e. DA, ACFO, and ADISX). Clustered robust standard errors are used to correct for both heteroscedasticity and autocorrelation. The results of each of the three models, which are based on three proxies of earnings management, are presented and discussed below. Table 6 reports the results of multiple regression analysis for the three models. The results show a positive relationship between state ownership and both accruals manipulation and sales manipulation; implying that Egyptian SOEs tend to manage their earnings using DA and sales.

4.2.1. Discretionary accruals model (DA)

The main effect of individual ownership concentration is found to have a significant and negative effect on AEM, as shown in Table 6, ($\beta = -0.124$ and $P\text{-value} = 0.00$). However, the interaction between ownership type and individual ownership concentration ($OWNT*INDCON$) is positively significant ($\beta = 0.038$ and $P\text{-value} = 0.001$), which means that ownership type affects the relationship in a way that the individual ownership concentration limits the level of discretionary accruals in POEs more than in the SOEs. With respect to magnitude, the coefficients on DA are -0.124 and -0.086 ($= -0.124 + 0.038$) for privately-owned and state-owned. The results suggest that higher individual ownership concentration is more likely to discourage the opportunistic behavior of management in both state and private companies. However, this relationship is stronger in private companies. This result is consistent with the agency theory and consistent with prior studies that find a negative relationship between ownership concentration and earnings management (Ding et al., 2007; Alves, 2012; Gonzalez and Meca, 2014).

Board size (BODSZ) has a positive and significant relationship with DA ($\beta = 0.0022$ and $P\text{-value} = 0.000$). On the other hand, the interaction term ($OWNT*BODSZ$) shows a weakly significant moderation to the relationship between board size and AEM ($\beta = -0.005$ and $P\text{-value} = 0.093$), which means that the ownership type moderates the relationship between board size (BODSZ) and AEM. The results suggest that a positive relationship between board size and AEM exists in POEs and a weakly negative relationship exists in SOEs. This is consistent with agency theory which suggests that the large board size limits communication between members and makes it easier to be controlled and influenced by the CEO, and thus adversely affects the monitoring role of the board (Jensen, 1993). Kao and Chen (2004) confirm that the large size of the board is positively associated with earnings management. On the other hand, this result contradicts the results of many previous studies (Xie et al., 2003; Peasnell et al., 2005; Ismail et al., 2009; Hsu & Wen, 2015; Singh et al., 2017) that provided evidence that the large board size enhances the board independence and the monitoring function.

This contradiction supports the idea that a larger board size does not actually promote the independence and the effective monitoring of the board in Egyptian companies.

The board independence variable (BODIND) is significantly and negatively associated with accrual earnings management ($\beta = -0.098$ and $P\text{-value} = 0.000$). However, when the ownership type is added to the model as a moderator variable (OWNT*BODIND), the effect of the board independence on the AEM is shrunk ($\beta = +0.042$ and $P\text{-value} = 0.000$). With respect to magnitude, the coefficients on DA are -0.098 and -0.057 ($= -0.097 + 0.042$) for privately-owned and state-owned, respectively (this represents a 43 % difference). This result implies that the independent board members monitor the DA more effectively when the company is privately controlled and raises questions about the independence of board members in SOEs and supports the idea that board members might be appointed in the state companies based on favoritism. Chen and Zhang (2014) confirm this finding, that the effect of board independence on earnings management is minimal in Chinese SOEs.

Concerning the CEO duality (Dual), the main effect has a significant and positive relationship ($\beta = 0.0193$ and $P\text{-value} = 0.000$), but the ownership type interaction effect (OWNT*Dual) shows a significant and negative relationship ($\beta = -0.0597$ and $P\text{-value} = 0.000$). With respect to magnitude, the coefficients on discretionary accruals are 0.0193 and -0.0404 ($= 0.0193 - 0.0597$) for privately-owned and state-owned, respectively. This finding suggests that the ownership type has a significant moderation effect on the relationship between CEO duality and DA and supporting the theme that CEO duality may undermine the effectiveness of the monitoring role of the board in the POEs. Unlike the SOEs, CEO duality has a negative relationship with DA.

Audit committee size (AUDSZ), Table 6 shows insignificant main effect ($P\text{-value} = 0.584$) and significant negative interaction effect for ownership type (OWNT*AUDSZ) ($\beta = -0.0125$ and $P\text{-value} = 0.00$). This finding shows a moderation effect for ownership type on the relationship between audit committee size and AEM and implies that the size of the audit committee has a negative effect on DA in SOEs only and does not play any role for mitigating AEM in POEs.

Regarding audit committee independence (AUDIND), the results show that the ownership type has no moderation effect (OWNT*AUDIND) on the relationship between audit committee independence and DA ($P\text{-value} = 0.135$). For the main effect of audit committee independence, the results show significantly and positively relationship ($\beta = 0.0414$ and $P\text{-value} = 0.000$). This result suggests that there is a positive relationship between audit committee independence and AEM regardless of ownership type. This finding raises questions about the independence and supports the fact that a higher proportion of non-executives does not necessarily enhance the independence and accountability of the audit committee. Moreover, audit committee members in Egypt may be independent in the form (structure) but not in substance or in actual fact.

Financial expertise (AUDEXP) of audit committee members, the results show a significant positive main effect ($\beta = 0.0098$ and $P\text{-value} = 0.02$)

and significant negative ownership type interaction effect ($\beta = -0.0057$ and $P\text{-value} = 0.029$). Regarding magnitude, the coefficients on DA are 0.0098 and 0.0041 ($= 0.0098 - 0.0057$) for privately-owned and state-owned, respectively. This result is inconsistent with the argument that the audit committees with financial expertise can mitigate earnings management through promoting the financial reporting quality and the quality of external audit and effectively monitoring the management behavior (Xie et al., 2003; Bedard et al., 2004; Chen & Zhang, 2014; Chen & Komal, 2018). The current study finding can be attributed to the fact that the members of the audit committee with financial experience are appointed on the basis of the relationships with controlling shareholders and to comply with the corporate governance code rather than to effectively control the financial reporting process in addition to insufficient time and payment for those members.

The number of audit committee meetings (No. meets.), the results show an insignificant main effect ($P\text{-value} = 0.624$) and a significant negative interaction effect for ownership type (OWNT*No. meets.) ($\beta = -0.0048$ and $P\text{-value} = 0.045$) which implies that the ownership type moderates the relationship between the number of audit committee meetings (No. meets.) and AEM.

Concerning the trade-off effect, the coefficient of unexpected real earnings management (UexpREM) is highly significant and positive ($\beta = 0.6895$ and $P\text{-value} = 0.000$). This contradicts the negative relationship found by Zhang (2012), which suggests that the unexpected high-level manipulation of real activities is offset by a decline in AEM, thereby supporting the trade-off effect in the US market. Therefore, unlike the US, this positive relationship suggests that managers in Egyptian firms might use both types of earnings management jointly to reach the target levels of earnings. This may be due to poor corporate governance and weak investor protection in Egypt. This result is consistent with the result of Kuo et al. (2014) which find a positive relationship between AEM and REM in Chinese firms and attribute this result to ineffective corporate governance and weak investor protection in emerging markets.

Moreover, the coefficient of the control variable (REMest) has a negative sign ($\beta = -0.877$), in contrast with that in Zang's (2012). This result also suggests the joint effect in Egypt as the levels of real activities manipulations are not affected by the levels of accrual manipulations. Consequently, it could be concluded that there is no trade-off between both types of earnings manipulations and that they are not practiced sequentially in Egypt.

4.2.2. Discretionary expenses model (ADISX)

The individual ownership concentration (INDCON) is found to have no significant effects on discretionary expenses manipulation ($P\text{-value} = 0.673$). The ownership type interaction with individual ownership concentration (OWNT*INDCON) is showing a significant and negative relationship ($\beta = -0.018$ and $P\text{-value} = 0.038$). The results suggest that ownership type moderates the relationship between individual ownership concentration and discretionary expenses manipulation in a way that

the individual ownership concentration effectively monitors the discretionary expenses in the SOEs only.

Regarding the board size (BODSZ), Table 6 shows insignificant main and interaction effects with ownership type (OWNT*BODSZ) on discretionary expenses manipulation (P-value = 0.342 and 0.976) which means that the ownership type does not moderate the relationship between board size (BODSZ) and discretionary expenses manipulation. The results imply that the board may not play any role to constrain discretionary expenses manipulation in Egyptian companies. This result is consistent with the findings of Visvanathan (2008) and Malik (2011).

For board independence (BODIND), the results indicate insignificant main effect on discretionary expenses manipulation (P-value = 0.826) and significant positively interaction effect for ownership type (OWNT*BODIND) ($\beta = 0.005$ and P-value = 0.032). This result means that the ownership type moderates the relationship between board independence (BODIND) and discretionary expenses manipulation. This result may be attributed to the inefficient oversight of board members for the discretionary expenses manipulation in Egyptian companies. This result is consistent with the findings of Malik (2011) and Hsu and Wen (2015), which found that independent directors are ineffective in curbing real activity earnings management practices. On the contrary, Visvanathan (2008) and Kang and Kim (2012) found a negative relationship between board independence and discretionary expenses manipulation.

The results show that the ownership type has insignificant moderation effect (OWNT*Dual) on the relationship between CEO duality and discretionary accruals (P-value = 0.633). For the main effect of CEO duality, the results show a significant and positive relationship ($\beta = 0.006$ and P-value = 0.003) with discretionary expenses manipulation. In line with agency theory, this result implies that a person holding both CEO and chairman positions has more incentives to engage in opportunistic earnings manipulation and weaken the oversight role of the board.

The audit committee size (AUDSZ) is found to have insignificant main and moderation effect (OWNT*AUDSZ) on discretionary expenses manipulation (P-value = 0.666 and 0.382). This finding is consistent with the finding of board size and implies that larger audit committees or boards do not necessarily enhance the quality of financial reporting and does not constrain discretionary expenses manipulation in Egyptian companies.

The main effect of audit committee independence is found to have a significant and negative effect on discretionary expenses manipulation ($\beta = -0.016$ and P-value = 0.006). However, the interaction between ownership type and audit committee independence (OWNT*AUDIND) is positive and significant ($\beta = 0.008$ and P-value = 0.000), which means that ownership type affects the relationship between audit committee

independence and discretionary expenses manipulation in a way that independent members of the audit committee in POEs play a monitoring role to mitigate the discretionary expenses manipulation more than in public sector companies. With respect to magnitude, the coefficients on discretionary expenses are -0.016 and -0.008 ($= -0.016 + 0.008$) for POEs and SOEs, respectively.

Financial expertise (AUDEXP) for audit committee members, the results of regression analysis in Table 6 show a significant positive main effect ($\beta = 0.017$ and P-value = 0.000), but the ownership type interaction effect (OWNT*AUDEXP) is significant and negative ($\beta = -0.007$ and P-value = 0.000). Regarding magnitude, the coefficients on discretionary expenses are 0.017 and 0.01 ($= 0.017 - 0.007$) for privately-owned and state-owned, respectively. This finding is consistent with the finding of AEM and implies that the members of the audit committee with financial experience do not effectively control the financial reporting process nor limit discretionary expenses manipulation.

The results show a significant negative relationship between the number of audit committee meetings and discretionary expenses manipulation ($\beta = -0.001$ and P-value = 0.000). The ownership type moderation effect (OWNT*No. meets.) is insignificant (P-value = 0.867), which means that there is a negative relationship between the number of audit committee meetings and discretionary expenses manipulation in both SOEs and POEs. This finding is consistent with the finding of Visvanathan (2008) and Garven (2015) and implies that audit committee meeting frequency increases the effectiveness of audit committees and therefore constrains the discretionary expenses manipulation.

4.2.3. Abnormal cash flows from operations model (ACFO)

As observed from Table 6, the results show that CEO duality (Dual) has an insignificant main effect (P-value = 0.14) and a significant negative interaction effect for ownership type (OWNT*Dual) ($\beta = -0.05$ and P-value = 0.03). This finding implies that when the chairman and the CEO is the same person in SOEs, s/he does not prefer to manage earnings using sales manipulation.

Concerning the rest of corporate governance and ownership structure variables (ownership concentration, board characteristics, and audit committee characteristics), the results in Table 6 show insignificant main relationship with abnormal cash flows and also insignificant moderation effect for ownership type which implies that the current corporate governance mechanisms are not effective in constraining the sales manipulation practices. This finding suggests that almost all mechanisms of corporate governance may not play a similar role to monitor and to mitigate REM practices as they do for AEM. Table 7 summarizes the results of the moderation effect of ownership type.

Table 6. The results of multiple regression analysis

Variables	DA model		ADISX model		ACFO model	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
OWNT	0.0464	0.000	-0.002	0.754	0.110	0.004
INDCON	-0.1239	0.000	0.005	0.673	-0.044	0.290
BODSZ	0.0022	0.000	0.000	0.342	0.003	0.384
BODIND	-0.0977	0.000	-0.001	0.826	-0.014	0.719
Dual	0.0193	0.000	0.006	0.003	0.020	0.140
AUDSZ	0.0009	0.584	0.001	0.666	-0.003	0.650
AUDIND	0.0414	0.000	-0.016	0.006	0.020	0.576
AUDEXP	0.0098	0.022	0.017	0.000	0.033	0.119
No. meets.	0.0002	0.624	-0.001	0.000	0.000	0.837
OWNT*INDCON	0.0377	0.001	-0.018	0.038	0.040	0.062
OWNT*MGOWN	-0.0907	0.000	0.001	0.962	0.009	0.718
OWNT*BODSZ	-0.0048	0.093	0.000	0.976	0.006	0.656
OWNT*BODIND	0.0422	0.000	0.005	0.032	0.005	0.614
OWNT*Dual	-0.0597	0.000	-0.003	0.633	-0.050	0.030
OWNT*AUDSZ	-0.0125	0.000	-0.001	0.382	-0.002	0.803
OWNT*AUDIND	-0.0035	0.135	0.008	0.000	-0.008	0.319
OWNT*AUDEXP	-0.0057	0.029	-0.007	0.001	-0.002	0.811
OWNT*No. meets.	-0.0048	0.045	0.000	0.867	0.002	0.764
Mktsh	0.0060	0.545	-0.022	0.003	-0.092	0.269
INST	-0.0824	0.000	-0.014	0.000	-0.024	0.407
Big 4	0.0130	0.000	-0.007	0.001	0.001	0.936
Audten	-0.0017	0.482	0.004	0.046	-0.003	0.594
OCycle	-0.0013	0.555	-0.009	0.000	-0.001	0.930
NOA	-0.0453	0.000	-0.008	0.054	-0.137	0.000
FSZE	0.0026	0.000	0.002	0.000	-0.014	0.316
ROA	0.0243	0.103	0.034	0.007	-0.267	0.000
LEV	0.1527	0.000	-0.025	0.000	0.179	0.000
GRW	-0.0025	0.032	-0.001	0.560	-0.008	0.335
UexpREM	0.6895	0.000				
REMest	-0.8775	0.000				
PreEar.			-0.005	0.663	0.362	0.000
N	1030		1030		1030	
R-squared	68.08 %		19.0 %		45.8 %	
Adjusted R-squared	67.13 %		16.6 %		35.9 %	
(F)	5830.77		303.65		4.63	
Prob	0.0000		0.0000		0.0000	

Table 7. Summary results of the moderation effect of ownership type

Moderation role of ownership type	DA model	ADISX model	ACFO model
Individual ownership concentration	Yes	Yes	No
Board size	Yes	No	No
Board independence	Yes	Yes	No
CEO duality	Yes	No	Yes
Audit committee size	Yes	No	No
Audit committee independence	No	Yes	No
Financial expertise of audit committee members	Yes	Yes	No
The number of audit committee meetings	Yes	No	No

5. CONCLUSION

This investigates the effect of ownership type on the relation between corporate governance and earnings management. Three proxies for measuring AEM and REM; namely discretionary accruals, abnormal cash flows, and abnormal discretionary expenses are employed. Three empirical models are developed in which the earnings management proxies represent the dependent variables. Independent variables in each empirical model are the same and are classified into four groups: first, ownership type variable. Second, corporate governance mechanisms, including individual ownership concentration, board size, board independence, CEO duality, audit committee size, audit committee independence, number of meetings and financial expertise of audit committee members. Third, substitution control variables, including market share, institutional ownership, auditor scrutiny, audit tenure, length of the operating cycle, and net operating assets. Fourth,

firm characteristics control, including firm size, firm performance, leverage, and growth.

Three models (i.e. DA, ACFO, and ADISX) are tested using a sample of non-financial companies containing SOEs and POEs over the period from 2010 to 2017, with 1030 firm-year observations. For SOEs, the results reveal that individual ownership concentration, the small board size, board independence, CEO duality, audit committee size and a number of audit committee meetings appear effective in constraining accruals manipulation. Individual ownership concentration, audit committee independence, and number of audit committee meetings can effectively deter discretionary expenses manipulation. Furthermore, only CEO duality appears negative effect on sales manipulation.

For POEs, the results reveal that individual ownership concentration, separation between CEO and Chairman, the small board size, and board independence appear effective in constraining accruals manipulation. As well, the separation

between CEO and Chairman, audit committee independence and number of audit committee meetings can effectively deter discretionary expenses manipulation. The results show also that all corporate governance attributes are ineffective in constraining sales manipulation. Finally, no evidence is found supportive of the tradeoff effect which means that managers in Egyptian firms use both types of earnings management jointly to reach the target levels of earnings.

The results of this study have several implications for regulators or policy-makers, investors and researchers. For regulators or policy-makers, the findings suggest that all corporate governance mechanisms may not play the same role to constrain REM, as in AEM. Also, the effect of corporate governance mechanisms on earnings management practices varies according to ownership type (i.e. state or private). Contrary to the prevailing belief, the results show that the audit committees' attributes are not effective in constraining managerial opportunistic behavior; this may refer to lack of independence, less awareness of responsibilities, lack of qualification, lower compensation or favoritism in selecting members. Therefore, regulators need to be aware of both types of earnings management (i.e. AEM and REM) and carry out additional corporate governance reforms in order to restrain the practice of both types of earnings management and taking into account the nature of each ownership type.

For investors, the results are likely to be helpful in assessing accounting information quality and management's ability in manipulating earnings and, therefore, rationalize their investment decisions. Additionally, the findings enable the regulators to refine existing governance systems and thus enhance investor protection. For researchers, this study provides new empirical evidence on the earnings management phenomenon in state-owned companies and the role of corporate governance

mechanisms in mitigating opportunistic earnings management practices in both state and private companies. Moreover, the results show that managers in Egyptian companies engage in both AEM and REM jointly to achieve earnings targets. Therefore, variation in earnings management cannot be fully captured by studying only one type of earnings management.

The findings of this study suggest that SOEs practice both AEM and REM. Further research on the incentives of earnings management phenomena in Egyptian SOEs is still needed. One possible avenue of future research is to investigate earnings management by banks and financial institutions and the role of monitoring mechanisms therein. Another interesting avenue for future research is conducting earnings management research under the informational or efficient hypothesis. In addition, it may be useful to investigate the impact of additional corporate governance attributes, such as the nomination and remuneration committees, on earnings management practices. While the results of this study reject the tradeoff effect and suggest a joint use of accruals and real activities manipulations in Egypt, further evidence on the constraints of accruals and real activities manipulations and joint use of them in Egypt is needed.

Finally, there are three important limitations to this work. First, this study is conducted within the framework of the agency's theory. Therefore, the findings of this study are restricted to the opportunistic rather than the informational assumption. The second, the findings of this study are likely to be conditional on the ability of these models to appropriately isolate the discretionary accruals component. Third, while this study only examined a set of internal governance mechanisms, it is possible that other governance mechanisms not explored in this study also determine the earnings management practices.

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