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Earnings Management Mechanisms and Firm Profitability: A Comparison Study

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Abstract

This research examines the impact of three earnings management mechanisms (accrual, real, and classification shifting) on a company's profitability as a key accounting and financial indicator of company's performance. Additionally, this research attempts to explore the nature of earnings management mechanisms usage by classifying them into complementarily or substitutionally. Using a sample of 146 Egyptian listed firms in the Egyptian Stock Exchange and 89 Jordanian listed firms in the Amman Stock Exchange is used for a period of six years from 2014 to 2019. The results of Egyptian firms support the complementary usage of earnings management mechanisms. These findings indicate that companies may mix and match some earnings management mechanisms to attain the most effect on their profitability, that is evident among Egyptian companies. Alternatively, the results of Jordanian companies support the notion that managers may elect or employ the most profitable earnings mechanism, or mechanism with the highest preferable effect on the financial performance. Thus, managers should abridge their excessive usage of earnings mechanisms within the flexibility of the applicable accounting standards to avoid any future penalties. Besides, regulators should work on the accounting gaps that facilitate such excessive usage of earnings mechanisms, particularly in the countries that do not fully adopt IFRS.

Keywords

Accrual Earnings Management, Real Earnings Management, Classification Shifting, Firm Profitability.

Article history

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1. Introduction

Earnings management is defined as an opportunistic behavior undertaken to serve the managerial needs and targets at the expense of shareholder's interests (Alareeni, 2018; Gill et al., 2013; Ball et al., 2003). Despite its opportunistic nature, earnings management has received considerable arguments about its usefulness. For instance, some scholars argue that some earnings mechanisms are considered as informative techniques which should be applied to convey the firm's future performance and inform the stakeholders about the firm's true business position (Ado et al., 2020; Jiraporn et al., 2008). This stream of research suggests that the usage of earnings mechanisms is a means by which the management reacts to their commitments towards contracting, capital markets, as well as political cost pressures (Callao et al., 2021). The contracting motives serve creditors and employees, since creditors observe the firms' creditworthiness to secure their debt covenants (Jiang, 2020); while employees are interested in their job positions and attaining their compensation plans (Holthausen et al., 1995). The capital motives serve the long-term investors rather than speculators, who contribute to the firms' continuity and market value through appreciating their stock prices, especially in the initial public offerings case (Teoh et al., 1998). The political motives serve the stock market regulations since the stock market listing or delisting rules govern and lessen the managerial opportunism (Watts and Zimmerman, 1986). Thus, examining different earnings management practices could contribute to this debatable area in the academic literature.

Earnings management is a managerial interference in communicating and presenting the financial information through accruals, real, or classification shifting mechanisms. Accrual earnings mechanism has been restrained by the mandatory adoption of IFRS (Hung and Subramanyam, 2007), therefore, managers tend to shift to another mechanism to manipulate earnings such as real earnings mechanism and expenses classification shifting mechanism to attain the targeted earnings. It might be argued that each earnings mechanism is employed for certain reporting purposes. For instance, the accrual earnings mechanism is highly sensitive to the managerial decisions, accounting estimates as well as accounting principles (e.g., depreciation methods, inventory valuation methods, and bad debts calculations of uncollectible receivables). This type of earnings management is normally applied at the end of reporting period and is described as discretionary accruals (Walker, 2013). In respect to the real earnings mechanism, it is characterized by the modification of timing or composition of cash flow activities such as operating, investing, and financing. This type of earnings management is normally applied during the fiscal year and are described as either the abnormal cash flows from sales activities, the abnormal discretionary expenses, or overproduction activities (Roychowdhury, 2006). In recent years, classification shifting mechanism has become an alternative mechanism to manipulate earnings. It has enabled companies' managers in attaining the analysts' predetermined goals at the lowest costs, appreciating the core earnings without alerting the bottom-line earnings, and overcoming the constraints of applying accrual and real earnings mechanisms (McVay, 2006). The classification shifting is featured by the reclassification of income statement line-items. Like accrual earnings mechanism,

classification sifting is normally applied at the end of the fiscal year and is described as the unexpected core earnings.

Accordingly, it can be argued that the applied earnings mechanism is selected based on the management rationale which in its turn affects the firm profitability. On the other hand, earnings management mechanisms could be informative if it conveys true firm's performance and thereby enhancing the firm's profitability by maintaining adequate level of liquidity and internal funds, enhancing firm reputation and its stock performance, providing a solid creditworthiness by restore the stakeholders' trust, as well as assuring more sustainable business. However, earnings management could be used opportunistically by managers who care only about their compensation contracts and private benefits at the expense of firm's growth or business continuity goals which in turn may lead to negative results such as fake profitability. Therefore, the application of earnings mechanisms complementarily or substitutionally is expected to fill this debated gap in the literature.

This study contributes to the earnings management literature by studying the individual and the collective effect of the aforementioned mechanisms on the firm's profitability. Furthermore, the researchers will attempt to identify whether these earnings mechanisms are complementing or substituting for each other. These results will be attained by analyzing the effect of each mechanism on the Egyptian and Jordanian publicly listed companies which will yield more objective and comprehensive results. Moreover, the current study might be the first to compare the effect of the classification shifting mechanism to the accrual and real earnings management mechanisms which are pervasively used in the earnings management literature. For instance, Al- Matbouly (2021) has noticed a substitutable role between the accrual and real earnings mechanisms among the Egyptian firms. Meanwhile, Mostafa (2018) has exclusively examined the negative impact of the accrual earnings mechanism's opportunistic role on the financial performance of the Egyptian firms. Similarly, Dakhlallh et al. (2020) have realized that Jordanian firms suffered from the negative influences of accrual and real earnings mechanisms on the firm performance. Al-Haddad et al. (2019) have mainly examined the classification shifting mechanism by the Jordanian firms and concluded a positive relationship between the nonrecurring expenses and the unexpected core earnings. Likewise, Chung et al. (2021) have examined the classification shifting by Korean private firms during the period from 2001 to 2016 and reported that classification shifting is normally used by the leveraged Korean private firms, compared to other private firms without debt.

Accordingly, the current research attempts to answer the following research questions: (i) Which earnings mechanism has the most effect on the firm's profitability? (ii) How do managers exploit earnings mechanisms (substitutionally or complementarily) to reach their targeted profitability? (iii) Which earnings philosophy best describes the implementation of the earnings mechanisms by the Egyptian and Jordanian public firms?

This paper is organized as follows: Section 2: the theoretical background. Section 3: literature review and hypotheses development. Section 4: the research methodology.

Section 5: the empirical findings. Sections 6 and 7: discussion and conclusion, respectively.

2. The Theoretical Background

Earnings management translates a managerial commitment towards handling any negative consequences of managing earnings, attaining the predetermined targets, and portraying a good profile of the firm accounting performance (Ayedh et al., 2019). It is a multi-dimensional phenomenon that cannot be described by one single theory, and thus the current study simulates its objectives through the agency, signaling, and positive accounting theories. These theories explain earnings management phenomenon from the stakeholders' views that are fueled by the managerial decision-making process of earnings management mechanisms and the external stakeholders' perceptions towards the firms' performance (Yudha et al., 2021).

Firstly, the agency theory is an expressive theory of the legitimacy of earnings management practices, whatever the incentives or the philosophies adopted by the firms' managers (Sun and Rath, 2008). It abbreviates the relationship between managers (agents) and stakeholders (principles) in a contract, that transfers the responsibility to agents to deal with any critical situation and make a suitable decision on the principles' behalf (Jensen and Meckling, 1976). Also, the managerial opportunism is associated with the agency theory due to the misalignment of agents' goals and stakeholders' expectations that could be explained by the information asymmetry problems. Hence, the criticism of the agency theory resides at concerning the economic perspective and neglecting both institutional and social perspectives (Oruke et al., 2021).

Secondly, the signaling theory tries to reduce the information asymmetry problem between managers and stakeholders by conveying some private information about the firm's performance (Karaman et al., 2020). Briefly, the efficient earnings philosophy is associated with the signaling theory due to reporting overstated earnings, that means reporting good signals about the firms' performance, and thus the firms' market values will be appreciated. However, the opportunistic earnings philosophy can be adopted within the signaling theory since managers still control the contents and the means of the informational transfer of good signals about the firms' performance which might be suspicious (Yimenu and Surur, 2019).

Finally, the positive accounting theory expresses the gray area of earnings management practices since it combines the agency role of the firms' management and the signaling role of the reported earnings, and thus it simultaneously reflects the opportunistic and efficient earnings philosophies (Mahjoub and Miloudi, 2015). This theory serves three earnings motives that are bonus hypothesis, debt covenant hypothesis, and political hypothesis (Watts and Zimmerman, 1990). The opportunistic philosophy can be observed in the bonus and debt covenant hypotheses since managers select the accounting procedures and estimates to overstate the reported earnings to achieve the maximum benefits by meeting their compensation plans (Dechow and

Sloan, 1991; Healy, 1985) and avoid the violation of debt covenants (DeFond and Jiambalvo, 1994). On the other hand, the efficient philosophy can be observed in the political hypothesis since managers are engaged in understating the reported earnings to avoid the high political costs among the large sized firms (Monti-Belkaoui and Riahi-Belkaoui, 1999), and overstating the reported earnings to get benefits from import reliefs (Jones, 1991).

3. Literature Review and Hypothesis Development

3.1. Accrual Earnings Mechanism and Firm Performance

Signaling theory implies that adopting accrual mechanism is supposed to reveal positive signals about the future firms' performance by appreciating their market values and their profitability levels through the managed output of an accounting system (Anderson et al., 2013; Krishnan, 2003). Similarly, Ghazali et al. (2015) found the positive influence of the discretionary accruals on profitability levels among the healthy Malaysian firms, since the higher profitability level the firms had, the greater managerial tendency to adopt accrual earnings mechanism. Furthermore, Hessayri and Saihi (2015) observed the informative impact of the accrual mechanism on the return on assets (ROA) that was supported by the higher growth opportunities among firms in emerging markets;(UAE, Morocco, South Africa, and the Philippines). Likewise, Ayisi et al. (2021) illustrated the positive impact of accrual earnings mechanism on the several proxies of firm profitability; ROA and ROE.

Contrarily , the agency theory proposes the opportunistic negative consequences of accrual earnings mechanism on firm's performance (Jiraporn et al., 2008). Similarly, prior studies have evidenced negative association between accrual earnings mechanism and profitability proxied by ROA among Egyptian and Jordanian firms as a result of weak regulatory environment (Mostafa, 2018; Abbadi et al., 2016;Alzoubi, 2016). Likewise, Chakroun and Ben Amar (2021) have concluded similar findings within the French context market.

Furthermore, the study of Dakhlallh et al. (2020) concluded the negative influence of accrual mechanism on firm performance among the Jordanian firms, by following the agency and signaling theories. Signaling marks appear when managers aim to overstate their earnings to align with the analysts' forecasts and maintain the firm's market position (Ding et al., 2018). However, agency costs appear when managers aim to secure their compensation plans and thus ignore any stakeholders' requirements (DeFond and Jiambalvo, 1994). Likewise, Wening and Damayanthi (2021) justified a positive association between accruals earnings and firms' profitability from both agency and positive accounting theories. According to the agency theory, the managers will act on a profit engineering approach to attain their compensation plans and improve their market performance even if they deceive stakeholders by artificially overstated earnings. Meanwhile, positive accounting theory explains this direct association through the managerial incentives such as bonus plan hypothesis, debt covenants hypothesis; and political cost hypothesis (Purnama and Nurdiniah, 2019)

.Otherwise, previous studies have showed the insignificant influence of the accrual earnings mechanism on the firms' profitability, especially within the strong corporate governance and the highly qualified external auditors (Dewi et al., 2016; Challen and Siregar, 2012).

Briefly, the literature showed mixed results about the association between accrual mechanism and firm performance, therefore, the first hypothesis can be formulated to express the impact of the accrual earnings mechanism on firm performance, as follows:

H1: There is a significant relationship between the accrual earnings mechanism and the firm's performance.

3.2. Real Earnings Mechanism and Firm Performance

According to the signaling theory, the real earnings mechanism is supposed to positively improve the future firm performance if managerial decisions can meet or beat the current earnings targets (Gunny, 2010). Some studies have indicated that real earnings mechanism positively affects firms' performance based on the cost-benefit analysis, especially for the Vietnam's energy firms (Khuong et al. 2019), and the UK firms (Al-Shattarat et al., 2018). Such good signals referring to the managerial gains to attain the earnings targets aligning with the market credibility and offsetting costs related to such mechanism implementation (Graham et al., 2005). Regarding real earnings mechanism, some studies have proxied it by using abnormal cash flows from operations (Hamza and Bannouri 2015; Zamri et al. 2013), other studies have proxied it by using abnormal discretionary expenses and abnormal production costs (Jiang et al. 2018; Zamri et al. 2013). Those studies have proxied firm's profitability using either ROA (Jiang et al. 2018; Hamza and Bannouri 2015; Zamri et al. 2013), or CFO (Jiang et al. 2018). Regarding the future firm performance, the study of Zamri et al. (2013) concluded the continuous managerial incentive to release good signals about the future firms' performance among Malaysian firms, and the study of Jiang et al. (2018) showed the positive association between the real earnings and future firm performance in the U.S. context. Additionally, the strong institutional environments (e.g., investors protection, law enforcement, and ownership concentration) and the application of the financial security laws play an effective role to limit the managerial opportunistic behavior and improve the firms' profitability (Jiang et al. 2018; Hamza and Bannouri 2015).

On the other hand, the adoption of real earnings mechanism may be costly and adversely affect the future firm performance due to the managerial opportunism. For instance, the study of Rahman and Xiong (2021) concluded the adverse effect of real earnings mechanism on the accounting firm performance (ROA) since the implementation costs of such mechanism cannot outweigh its benefits (Dechow et al., 2003). Similarly, the studies of Debnath et al. (2021) and Cupertino et al. (2016) concluded a negative impact of real earnings mechanism on the future firm performance in Bangladesh and Brazil, respectively. Moreover, the studies of Kumar et al. (2021) and Tabassum et al. (2015) found a negative association between real

earnings activities and both of accounting and market firm performance indicators (ROA,ROE, price earnings P/E, and earnings per share EPS ratios) among the Indian and Pakistani firms, respectively. These results presented connotations for the stakeholders about opportunistic earnings management through real activities, as all interested parties were more concerned about accruals earnings as a sponsor for any managerial acts. Besides, these findings indicate that the market adjusts the stock price appropriately considering the accounting performance of the firms. Therefore, the second hypothesis to express the influence of real earnings mechanism on firm performance can be formulated as the following:

H2: There is a significant relationship between the real earnings mechanism and the firm's performance.

3.3. Classification Shifting and Firm Performance

According to the agency theory and managerial opportunism, it is expected that the classification shifting mechanism will adversely impact the future firm performance concerning the profitability ratio (through ROA). Similarly, Anagnostopoulou et al. (2021) concluded the negative association between the misclassified core earnings and the future firm performance using ROA and CFO. These adverse results express the opportunistic managerial attitude within the agency theory that urgently applies during the initial public offerings procedures. Hence, these negative consequences can be limited within a strong external corporate governance and a highly protected business environment (Cain et al., 2020). Likewise, Imeni et al. (2021) found that unexpected core earnings adversely impact the firm performance (ROA) as evidence of opportunistic behavior.

On the other hand, Zalata and Roberts (2017) found a positive association between unexpected core earnings as a proxy for classification shifting mechanism and ROA. This positive signal indicates that the highly performed firms are engaged in classification shifting mechanism within the signaling theory and agency theory as the reliance on classification shifting allowed managers to opportunistically attain earnings benchmarks at the lowest costs after the application of international financial accounting standards (IFRS) that overvalued this mechanism (Athanasakou et al., 2009). Otherwise, Liu and Wu (2020) observed the positive association between firm profitability (ROA) and unexpected core earnings reflected in higher reported core earnings and price formation in the pre-initial public offerings (IPO) indicating good signals to the market percipient. Conversely, the opposite results appeared after the initial public offerings (IPO) periods reflecting the opportunistic behavior that may be an alarm to investors, regulators, and auditors to be cautious toward such mechanism. Hence, the third hypothesis can be formulated as the following:

H3: There is a significant relationship between the classification shifting and the firm's performance.

4. Methodology

4.1 Sample Selection

The sampling process was purposive to serve the listed objectives, and **Table 1** shows that the final sample has included 146 and 89 non -financial listed Egyptian and Jordanian companies, respectively, covering the period from 2014 to 2019. Data for this study were collected from the Thompson Reuters DataStream financial database for non-financial firms listed on the Egyptian and Jordanian stock exchanges, and they were already reported in the U.S. dollar. The financial sector has been eliminated due to its specific accounting and disclosure requirements. The financial information has been reported in the U.S. dollar to avoid the translation of currencies when comparing the results of the Egyptian firms with the Jordanian firms. Furthermore, the sectors that have less than ten firm-year observations have been excluded due to the requirement of a cross-sectionally modified Jones model to predict the absolute value of discretionary accruals (Peasnell et al., 2005; Klein, 2002), and the requirement of a cross-sectionally McVay model to predict the unexpected core earnings(Nagar and Sen, 2017).

Table 1: The Final Sample over the period (2014-2019)

Sample Description	Egypt	Jordan
Total Firms	219	183
Less: Financial Sector	41	57
Less: Firms with Missing Data	17	13
Less: Sectors with Less than ten firm-year observations	15	24
The Final Sample	**146**	**89**

Meanwhile, **Table 2** illustrates the breaking down of the final sample into sectors and shows the most dominant sector in Egypt is the consumer cyclical sector at approximately 23%, while the real estate sector is the most dominant in Jordan at approximately 34%. Accordingly, the composition of Amman Stock Exchange (ASE)-listed companies and Egyptian Stock Exchange (EGX)-listed companies over 6 years designates 1410 firm-year observations, 876 Egyptian firm-year, and 534 Jordanian firm-year.

Table 2: The Final Sample Classified by Sector

Sector	Egypt		Jordan	
	Firm	%	Firm	%
Basic Materials	32	22	18	20
Consumer Cyclicals	34	23	15	17
Consumer non-cyclicals	29	20	12	13
Healthcare	11	8	0	0
Industrials	17	12	14	16
Real Estate	23	15	30	34
Total	146	100	89	100
Firm-Year Observations	**876**		**534**	

4.2. Variables and their Measurements

4.2.1. Dependent Variable: Firm Performance

It represents the dependent variable, that can be proxied by the profitability indicator that is (ROA). The current study opts to select the (ROA) since it is commonly used in the literature of earnings management (Anagnostopoulou et al. 2021; Rahman and Xiong, 2021; Mostafa, 2018). The following equation shows the calculation of ROA using net income after taxes and average total assets:

$$ROA = Net\ Income\ After\ Taxes \div Average\ Total\ Assets \quad (1)$$

4.2.2. Independent Variables

Accrual Earnings Mechanism

It expresses the first independent variable that can be captured by the discretionary accruals. Based on the existing literature, the discretionary accruals can be estimated by the Modified Jones Model proposed by Dechow et al.(1995). The estimation process will be applied through the following model:

$$\frac{TAAC_{i,t}}{A_{i,t}} = \beta_0 + \beta_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta\ Sales_{i,t} - \Delta\ Rec_{i,t}}{A_{i,t-1}}\right) + \beta_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (2)$$

Where,

$TAAC_{i,t}$ = total firm accruals that were estimated by the cash flow approach by subtracting the cash flow from operations from the net income before extraordinary items for the firm (i) in the year t;

$A_{i,t-1}$ = the value of assets for the firm (i) in the year (t-1);

$\Delta Sales_{i,t}$ = The change in net sales of the firm (i) in the year t;

$\Delta REC_{i,t}$ = The change in net accounts receivable of the firm (i) in the year t;

$PPE_{i,t}$ = The gross value of property, plant, and equipment of the firm (i) in the year t-1; and

$\varepsilon_{i,t}$ = The discretionary accruals are represented by the regression residuals since it reflects the unexplained part of total accruals; and the non-discretionary accruals are calculated through the coefficients provided in this model.

Real Earnings Mechanism

It represents the second independent variable that can be captured by the abnormal cash flow from operations that will be estimated by Roychowdhury (2006). The current study relies on sales manipulation activities that cause the inflated earnings by applying the discount policies and the flexible credit terms since it is commonly used in the literature of real earnings mechanism (Rahman and Xiong, 2021; Ayisi et al., 2021; Dakhlallh et al., 2020). According to this model, the normal level of cash flow from operations is expressed as a linear function of sales and the change in sales in the current period.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_2\left(\frac{Sales_{i,t}}{A_{i,t-1}}\right) + \beta_3\left(\frac{\Delta Sales_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (3)$$

Where,

$CFO_{i,t}$= The cash flow from operations of the firm (i) in year t;

$A_{i,t-1}$= The value of total assets of the firm (i) in year t-1;

$Sales_{i,t}$ = Net sales of the firm (i) in year t.

$Sales_{i,t-1}$= The change in net sales of the firm (i) in year t-1.

$\varepsilon_{i,t}$ = The abnormal levels of operating cash flow are represented by the regression residuals.

Classification Shifting

It represents the third independent variable that can be captured by the unexpected core earnings and will be estimated by McVay (2006). This model aims to associate firms' core earnings with other performance measures that capture normal core earnings and estimate the abnormal core earnings (unexpected core earnings) as a proxy for classification shifting. Thus, the model to estimate the abnormal core earnings is presented as the following:

$$CE_{i,t} = \beta_0 + \beta_1 CE_{i,t-1} + \beta_2 ATO_{i,t} + \beta_3 Accruals_{i,t-1} + \beta_4\ Accruals_{i,t} + \beta_5\,\Delta\,Sales_{i,t} + \beta_6\ NEG\_Sales_{i,t} + \varepsilon_{i,t} \quad (4)$$

Where,

$CE_{i,t}$ = Core Earnings, they are measured by dividing Net Income before Extraordinary items by the Current year Sales Revenues.

$ATO_{i,t}$ = the asset turnover ratio, this is measured by dividing the Current year Sales by the average net operating assets (NOA). NOA are measured by the difference between operating assets and operating liabilities. Operating Assets are measured as the following: (Total Assets less Cash and Short-Term Investments). While Operating Liabilities are measured as the following: total assets less total debt (long- term debt and the current portion of long- term debt) less the book value of common and preferred equity less minority interests.

$Accruals_{i,t}$ = Operating Accruals, they are calculated by dividing the difference between net income before extraordinary items and cash from operations by current year sales.

$\Delta Sales_{i,t}$ represents the percentage change in sales from year t-1 to t. It is measured as follows: $[(Sales\ t - Sales\ t-1)\ /\ Sales\ t-1]$.

$NEG\_Sales_{i,t}$ is a dummy variable, if $\Delta Sales_{i,t}$ is negative =1 and otherwise= 0.

$\varepsilon_{i,t}$ represents the unexpected core earnings.

4.3. Research Model

The pooled ordinary least square (OLS) regression model will be applied to test the direct impact of the earnings mechanisms on firm performance in the presence of control variables. The research model will be formulated as the following:

$$\mathbf{ROA}_{i,t} = \beta_0 + \beta_1 \mathbf{AEM}_{i,t} + \beta_2 \mathbf{REM}_{i,t} + \beta_3\ \mathbf{CS}_{i,t} + \beta_4\ \mathbf{IFRS}_{i,t} + \beta_5\ \mathbf{FD}_{i,t} + \beta_6\ \mathbf{CR}_{i,t} + \beta_7 \mathbf{LEV}_{i,t} + \beta_8 \mathbf{SIZE}_{i,t} + \beta_9\ \mathbf{AGE}_{i,t} + \beta_{10}\ \mathbf{AQ}_{i,t} + \beta_{11}\ \mathbf{GO}_{i,t} + \varepsilon_{i,t} \quad (5)$$

Table 3 shows the expected effects of the three earnings management mechanisms on firm profitability. Prior literature indicates mixed evidence regarding the impact of accrual and real earnings mechanisms on the firm profitability, while it implies the positive impact of the classification shifting mechanism on profitability. Additionally, **Table 3** explains the expected effects of control variables on the firm profitability.

Table 1: Independent and Control Variables and their expected effects

Variable	Abb.	Measurement	Expected Effect	Ref.
Independent Variables				
Accrual Earnings Management	**AEM**	The absolute value of discretionary accruals.	**(+/-)**	(Ayisi et al. 2021) (Dakhlallh et al., 2020)
Real Earnings Management	**REM**	The abnormal cash flow through sales manipulation activities.	**(+/-)**	(Ayisi et al. 2021) (Dakhlallh et al., 2020)
Classification Shifting	**CS**	The unexpected core earnings.	**(+)**	(Zalata & Roberts, 2017)
Control Variables				
1) IFRS adoption	**IFRS**	Dummy variable (1=IFRS after 2016, and 0=otherwise).	**(+)**	(El Sawah, 2019)
2) Financial Distress	**FD**	The (Altman et al. 1995) scoring model * -1	**(-)**	(Li et al., 2020) (Rakshit and Paul, 2020)
3) Current Ratio	**CR**	Current Assets ÷ Current Liabilities	**(+)**	(Ayisi et al. 2021)
4) Leverage	**LEV**	Total Liabilities ÷ Total Assets	**(-)**	(Alarussi & Alhaderi, 2018)
5) Firm Size	**SIZE**	The natural log of Total Assets.	**(+)**	(Dewi & Wijaya, 2021)
6) Firm Age	**AGE**	The number of years since the firms being listed in the stock exchange.	**(+)**	(Xiong 2016)
7) Audit Quality	**AQ**	Dummy variable (1=big4 audit firm, 0=otherwise)	**(+)**	(El Deeb and Ramadan, 2020)
8) Growth Opportunities	**GO**	Market price per share ÷ Book value per share	**(+)**	(Hessayri and Saihi, 2015)

5. Empirical Results

5.1 Descriptive Statistics

Table 2 and Table 3 illustrate the descriptive statistics of this research's variables among Egyptian companies. The return on assets (ROA) was (4.3%) on an average with a standard deviation of (0.076) with the maximum rate of (20% profits) and the minimum of (-10.8% losses). Meanwhile the Jordanian sample descriptive results were presented in **Table 4** and **Table 5**. It shows that the average (ROA) was (0.4%) with a standard deviation of (0.054). The minimum and maximum values of the ROA range between (-9.9% losses) and (11.5% profits), respectively. Thus, the Egyptian companies are more profitable compared to the Jordanian companies.

Table 2: Descriptive Statistics - Egypt

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	876	0.043	0.076	-0.108	0.200
AEM	876	0.094	0.087	0.000	0.270
REM	876	-0.003	0.090	-0.181	0.176
CS	876	0.243	0.210	0.000	0.713
FD	876	6.888	3.861	-1.142	14.802
CR	876	1.700	1.003	0.025	3.733
LEV	876	0.504	0.277	-0.002	1.172
SIZE	876	18.124	1.635	14.150	22.100
AGE	876	15.913	7.048	0.000	34.750
GO	876	1.319	1.122	-1.047	3.453

Where, ROA is a return on assets ratio of a firm (i) for a period (t), AEM is the discretionary accruals of a firm (i) for a period (t), REM is the real earnings management of a firm(i) for a period (t), CS is the reclassification mechanism of a firm (i) for a period (t), FD is an indicator for the financial distress of a firm (i) for a period (t), CR is the current ratio of a firm (i) for a period(t), LEV is the debt ratio of a firm (i) for a period (t), SIZE is the natural logarithm total assets of a firm (i) for a period (t), AGE is an indicator of the firm's age, GO is an indicator of the firm's growth opportunities.

Table 3: Tabulation of Dummy Variables- Egypt

Variables	Dummy	Frequency	Percent
AQ	0	712	81.28
	1	164	18.72
IFRS	0	292	33.33
	1	584	66.67
Total		876	100

Where, AQ is audit quality (i.e., dummy variable) equals 1 if the firm is audited by the Big-4 auditors and 0 otherwise; IFRS represents another dummy variable equals 1 if the firm is converted to IFRS and 0 otherwise

Table 4: Descriptive Statistics- Jordan

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	534	0.004	0.054	-0.099	0.115
AEM	534	0.062	0.052	0.000	0.181
REM	534	-0.004	0.064	-0.129	0.125
CS	534	1.222	1.565	0.000	4.769
FD	534	10.012	7.344	-7.094	25.993
CR	534	2.171	1.803	0.014	5.883
LEV	534	0.303	0.219	0.001	0.843
SIZE	534	17.271	1.295	14.161	20.514
AGE	534	16.051	6.429	2.000	26.000
GO	534	0.851	0.530	-0.391	1.998

Table 5: Tabulation of Dummy Variables- Jordan

Variables	Dummy	Frequency	Percent
AQ	0	428	80.15
	1	106	19.85
IFRS	0	0	0
	1	534	100
Total		534	100

Regarding earnings management mechanisms, the descriptive statistics reveal the following: First, accrual earnings management (AEM) exhibited the homogeneity among the Egyptian firms by showing the overall standard deviation (0.087), which was less than the overall mean (0.094). Furthermore, the mean of (0.094) suggested the income-increasing approach among the Egyptian firms. Some firms relied heavily on the discretionary accruals by showing the maximum value of (0.270), and other firms preferred the efficient approach by not engaging in accruals or shifting to other earnings mechanisms by showing the minimum value of (0.000). Similarly, the Jordanian firms exhibited the homogeneity since the AEM showed an overall standard deviation of (0.052), which was less than the overall mean (0.062). Also, the mean of (0.062) assumed the income-increasing approach among the Jordanian firms. Some firms relied heavily on the discretionary accruals through the maximum value of (0.181), and other firms preferred the efficient approach by not engaging in accruals or shifting to other earnings mechanisms through the minimum value of (0.000). While an average usage of AEM among the Egyptian firms was higher than the Jordanian firms.

Second, the real earnings mechanism (REM) displayed an overall mean (-0.003), suggesting the firms' tendency to adopt the income-decreasing earnings management through sales manipulation activities (like the credit term customization and the price reduction policies). REM indicated the heterogeneity among the Egyptian firms, that could be observed in the overall standard deviation (0.090), which was greater than the overall mean (-0.003). The minimum and maximum values of the REM were (-0.181) and (0.176) respectively. Like the Egyptian firms, the Jordanian firms adopted the income-decreasing earnings management through sales manipulation activities by

showing an overall mean of (-0.004). In addition, REM exhibited a clear heteroscedasticity among the Jordanian firms by showing the overall standard deviation (0.064), which was greater than the overall mean (-0.004). The minimum and maximum values of the REM were (-0.129) and (0.125) respectively.

Finally, CS exhibited the homogeneity among the Egyptian firms by showing the overall standard deviation (0.210), which was less than the overall mean (0.243). Furthermore, the Egyptian firms adopted the income-increasing approach through the application of the classification shifting mechanism. Some firms relied heavily on the CS by showing the maximum value of (0.713), and other firms preferred the efficient approach by not engaging in the reclassification mechanism or shifting to other earnings management mechanisms by showing the minimum value of (0.000). In the same manner, the Jordanian firms adopted the income-increasing approach through the application of the CS by showing an overall mean of (1.222). Moreover, the CS exhibited a clear heterogeneity among the Jordanian firms by showing an overall standard deviation of (1.565), which was greater than the overall mean (1.222) among the Jordanian firms. Some firms relied heavily on the CS through the maximum value of (4.769) and the other firms preferred the efficient approach by not engaging in the CS or shifting to other earnings management mechanisms through the minimum value of (0.000). Hence, the average usage of CS among the Jordanian firms was higher than the Egyptian firms.

Furthermore, the continuous control variables are financial distress, liquidity, leverage, firm size, firm age, and growth opportunities. First, FD proxied by Z-SCORE suggesting a homogeneity among the Egyptian firms by presenting the value of standard deviation (3.861) that was less than the overall mean (6.888). Generally, the Egyptian firms were healthy through the maximum value of (14.802), and some other firms showed insolvency through the minimum value of (-1.142). The minimum values of Z-Score were observed in the period from 2016 to 2018, and the maximum values in 2018 and 2019. Additionally, the financial distress showed a reasonable overall deviation of (7.344) and the overall mean (10.012) indicating a homogeneity among the Jordanian firms. Commonly, the Jordanian firms were healthy through the maximum value of (25.993) during the study period from 2014 to 2019, while Noor Capital Markets for Diversified Investments (NCMD.AM) showed insolvency through the minimum value of (-7.094) in 2016.

Second, the liquidity (CR) illustrated an overall standard deviation of (1.003), which was less than its overall mean (1.700). Hence, the collected sample was homoscedastic regarding the liquidity ratio among the Egyptian firms. Furthermore, the Egyptian firms maintained a desirable level of liquidity ratio to meet their short-term obligations as they become due, indicating a minimum value of (0.025) and a maximum value of (3.733). While the Jordanian firms sustained superior levels of liquidity ratio compared to the Egyptian firms by showing an overall mean of (2.171). In addition, the sample implied homoscedasticity regarding the liquidity ratio since it showed an overall standard deviation of (1.803), which was less than its overall mean (2.171). The minimum value of liquidity (0.014) was achieved by Enjaz for

Development and Multi Projects Company (ATCO.AM) in 2014, and the maximum value of liquidity was (5.883).

Third, LEV showed an overall standard deviation of (0.277), which was less than its overall mean (0.504). hence, the collected sample was homoscedastic regarding the leverage among the Egyptian firms. Further, the Egyptian firms showed a minimum value of LEV at (-0.002), and a maximum value of LEV at (1.172). For instance, Samad Misr (SMFR.CA) showed a minor dependence on debts to finance their assets due to their accumulated losses and their commitment towards the minority interest, especially in 2017. Additionally, the collected sample regarding the LEV indicated the homoscedasticity among the Jordanian firms by showing an overall standard deviation of (0.219), which was less than the overall mean (0.303). The minimum leverage level of (0.001) was achieved by Nopar for Trading and Investment Co (NOTI.AM) in 2014, and the maximum leverage level was (0.843). Briefly, the Egyptian firms relied on debt financing at higher leverage levels than the Jordanian firms.

Fourth, SIZE was measured by the natural log of assets, and thus, the size showed an overall deviation of (1.635), which was very small relative to the overall mean (18.124). Hence, the collected sample was homoscedastic regarding the firm size among the Egyptian firms. The largest value of (22.1) was showed by Talaat Mostafa Group Holding (TMGH.CA) and the smallest value of (14.15) was showed by Egyptians for Investment and Urban Development (EIUD.CA). On the other hand, the size showed an overall deviation of (1.295), which was very small relative to the overall mean (17.271) among the Jordanian firms. Hence, the collected sample was homoscedastic regarding the firm size among the Jordanian firms. The maximum value of (20.514) was showed by Arab Potash Co (APOT.AM) and Jordan Phosphate Mines Company (JOPH.AM), while the minimum value of (14.161) was showed by Nopar for Trading and Investment Co (NOTI.AM) and Noor Capital Markets for Diversified Investments (NCMD.AM).

Fifth, AGE relied on the initial public offering date for each firm, and thus, the age showed an overall deviation of (7.048), which was insignificant or minimal relative to the overall mean (15.913). Hence, the collected sample was homoscedastic regarding the AGE among the Egyptian firms. The aged firm which was Egyptian Iron and Steel (IRON.CA), showed a value of (34.75); and the newly listed firms in 2016 which were MM Group for Industry and International Trade (MTIE.CA) and Obour Land for Food Industries (OLFI.CA), showed a value of (0.000). While the age showed an overall deviation of (6.429), which was very small relative to the overall mean (16.051) among the Jordanian firms. Hence, the collected sample was homoscedastic regarding the firm age among the Jordanian firms. The aged firms showed a maximum value of (26) and Siniora Food Industries Company (SNRA.AM) showed a minimum value of (2) since it was newly listed in 2012.

Finally, GO showed a standard deviation of (1.122), which was less than the overall mean (1.319). Hence, the collected sample was homoscedastic regarding the GO among the Egyptian firms. Obour Land for Food Industries (OLFI.CA) showed the highest growth opportunities value of (3.453) in comparison with the other aged firms,

and some firms showed the lowest growth opportunities value of (-1.047). Moreover, the collected sample was homoscedastic regarding the GO among the Jordanian firms since the value of standard deviation (0.530) was less than the overall mean (0.851). Many firms had maximum values of GO (1.998) due to their larger size, higher liquidity levels, and higher profitability levels. While Alia Royal Jordanian Airlines (RJAL.AM) had a minimum value of GO (-.391) due to its higher leverage levels, lower liquidity level, and lower profitability levels.

Table 3 illustrates the second part of descriptive statistics concerning dichotomous nominal variables, which are Audit Quality (AQ) and International Financial Reporting Standards (IFRS). The percent of (18.72%) among the Egyptian firms were audited by the Big four audit firms, while (81.28%) of other firms were audited by the non-Big Four audit firms. The higher percentage of firms that were audited by the non-big four audit firms might be due to the lower levels of profitability and the debt financing costs that might constrain those firms from attaining the big four audit firms' requirements. Additionally, IFRS indicated that (66.67%) of the Egyptian firms adopted IFRS and about (33.33%) adopted the Egyptian Accounting Standards (EAS). The frequency of IFRS among the Egyptian firms is due to the convergence to IFRS except for some standards issued by the Ministry of Investment and International Cooperation. Hence, the Egyptian firms partially adopted the IFRS standards.

Table 5 illustrates the second part of descriptive statistics concerning dummy variable which is Audit Quality (AQ) among the Jordanian firms. The percent of (19.85%) among the Jordanian firms were audited by the Big four audit firms, while (80.15%) of other firms were audited by the non-Big Four audit firms. The higher percentage of firms that were audited by the non-big four audit firms might be due to the lower levels of profitability and the debt financing costs, that might constrain those firms from attaining the big four audit firms' requirements. Meanwhile, the frequency of the IFRS represented 100% among the Jordanian firms due to the mandatory IFRS adoption, which was obligated since December 2012 according to the IFRS website. Hence, the Jordanian firms completely adopt the IFRS standards.

5.2. Correlation Matrix

In respect of the Egyptian sample, **Table 6** reveals that the ROA has a significant positive correlation coefficient of (0.086) with the AEM, (0.445) with the REM, and (0.185) with the CS at significant levels of less than 5%, 1%, and 1% respectively. These results indicate that firms with high profitability levels have a high tendency to engage in the three earnings management mechanisms.

In addition, the correlation between profitability and control variables, can be observed as the following: First, the ROA has a significant positive correlation coefficient of (0.323) with the CR, (0.141) with the SIZE, and (0.346) with the GO at a significant level of less than 1%. These results suggest that large firms have sufficient liquidity levels to meet their current commitments and have the capabilities to attain higher profitability levels, and thus they will create many potential growth

opportunities. Second, the ROA has a significant negative correlation coefficient of (-0.528) with FD, (-0.227) with LEV, and (-0.065) with AQ at significant levels of less than 1%, 1%, and 10% respectively. These results imply that the highly leveraged firms are more exposed to financial distress when they achieve lower profitability levels, and thus they will not be capable of meeting the highly qualified audit firms' requirements. Third, the ROA has an insignificant correlation coefficient of (0.040) with the AGE, and (0.019) with the IFRS adoption. The AGE cannot constrain firms from attaining their profitability levels since the youngest firms such as Obour Land for Food Industries (OLFI.CA) can create new growth opportunities and raise their sectors' efficiency as observed in the descriptive statistics (**Table 2**).

In respect of the Jordanian sample, **Table 7** reveals that the ROA has a significant negative correlation coefficient of (-0.086) with the AEM at a significant level less than 5%, indicating that firms with high profitability levels have a low tendency to manage their earnings through the accruals. While the ROA has a significant positive correlation coefficient of (0.348) with the REM at a significant level of less than 1%, implying that the highly profitable firms are more motivated to manage their earnings through the real earnings management mechanism. Otherwise, there is an insignificant association between the ROA and the CS with a correlation coefficient of (-0.002).

Also, the ROA has a significant negative correlation coefficient of (-0.288) with LEV and (-0.292) with FD at a significant level of less than 1%, implying that the highly leveraged firms are more candidate to be financially distressed when they achieve lower profitability levels. On the other hand, the ROA has a significant positive correlation coefficient of (0.302) with the CR, (0.141) with SIZE, (0.104) with the AQ, and (0.279) with GO at significant levels of less than 1%,1%,5%, and 1% respectively. These results imply that large firms tend to attain higher profitability levels and higher liquidity levels, are expected to be monitored by the high-quality external auditors, and thus they will create many potential growth opportunities. While there is an insignificant association between the ROA and the AGE with a correlation coefficient of (0.070).

Table 6: Pearson's Correlation Matrix - Egypt

Variables	ROA	AEM	REM	CS	IFRS	FD	CR	LEV	SIZE	AGE	AQ	GO
ROA	1.000											
AEM	0.086** (0.011)	1.000										
REM	0.445*** (0.000)	-0.028 (0.401)	1.000									
CS	0.185*** (0.000)	0.052 (0.122)	0.020 (0.556)	1.000								
IFRS	0.019 (0.574)	0.140*** (0.000)	-0.028 (0.412)	0.128*** (0.000)	1.000							
FD	-0.528*** (0.000)	0.095*** (0.005)	-0.379*** (0.000)	-0.061* (0.070)	0.052 (0.128)	1.000						
CR	0.323*** (0.000)	-0.095*** (0.005)	0.259*** (0.000)	0.027 (0.421)	-0.032 (0.338)	-0.853*** (0.000)	1.000					
LEV	-0.227*** (0.000)	0.179*** (0.000)	-0.326*** (0.000)	0.014 (0.671)	0.010 (0.768)	0.782*** (0.000)	-0.634*** (0.000)	1.000				
SIZE	0.141*** (0.000)	-0.166*** (0.000)	-0.057* (0.094)	0.018 (0.605)	-0.117*** (0.001)	0.175*** (0.000)	-0.271*** (0.000)	0.314*** (0.000)	1.000			
AGE	0.0396 (0.242)	0.081** (0.017)	-0.023 (0.501)	0.065* (0.055)	0.199*** (0.000)	0.030 (0.377)	-0.011 (0.744)	0.066* (0.050)	0.035 (0.300)	1.000		
AQ	-0.065* (0.054)	-0.075** (0.026)	-0.090*** (0.008)	-0.038 (0.261)	-0.039 (0.245)	0.155*** (0.000)	-0.128*** (0.000)	0.190*** (0.000)	0.370*** (0.000)	-0.023 (0.502)	1.000	
GO	0.346*** (0.000)	-0.005 (0.875)	0.214*** (0.000)	0.111*** (0.001)	-0.005 (0.884)	-0.111*** (0.001)	0.005 (0.893)	-0.073** (0.030)	0.090*** (0.008)	-0.089*** (0.008)	-0.010 (0.770)	1.000

***** p<0.01, ** p<0.05, * p<0.10**

Table 7: Pearson's Correlation Matrix- Jordan

Variables	ROA	AEM	REM	CS	FD	CR	LEV	SIZE	AGE	AQ	GO
ROA	1.000										
AEM	-0.086** (0.047)	1.000									
REM	0.348*** (0.000)	0.085* (0.049)	1.000								
CS	-0.002 (0.970)	0.022 (0.615)	-0.033 (0.453)	1.000							
FD	-0.292*** (0.000)	0.085* (0.050)	-0.227*** (0.000)	0.124*** (0.004)	1.000						
CR	0.302*** (0.000)	0.041 (0.347)	0.179*** (0.000)	-0.080*** (0.064)	-0.657*** (0.000)	1.000					
LEV	-0.288*** (0.000)	0.138*** (0.001)	-0.252*** (0.000)	0.073* (0.091)	0.819*** (0.000)	-0.519*** (0.000)	1.000				
SIZE	0.141*** (0.001)	-0.150*** (0.001)	-0.105** (0.016)	0.070 (0.109)	0.282*** (0.000)	-0.099** (0.022)	0.311*** (0.000)	1.000			
AGE	0.070 (0.107)	0.031 (0.482)	-0.073* (0.092)	0.003 (0.944)	0.082* (0.057)	0.026 (0.545)	0.058 (0.178)	0.146*** (0.001)	1.000		
AQ	0.104** (0.016)	-0.027 (0.535)	0.023 (0.604)	-0.001 (0.982)	0.049 (0.257)	-0.091** (0.036)	-0.006 (0.891)	0.280*** (0.000)	0.223*** (0.000)	1.000	
GO	0.279*** (0.000)	0.177*** (0.000)	0.202*** (0.000)	0.021 (0.636)	0.035 (0.424)	0.049 (0.257)	0.117*** (0.007)	0.054 (0.212)	-0.055 (0.204)	-0.114*** (0.008)	1.000

***** p<0.01, ** p<0.05, * p<0.10**

5.3. Optimal Lag Selection

Table 8 presents the optimal lag selection test that explores the impact of previous periods on the current period for the employed dependent variable (ROA) to ensure the model stability and avoid the autocorrelation problem (Dhuria and Chetty, 2018). The current profitability ratio is influenced by the previous period ratio that is optimally four years and two years lag for the Egyptian and Jordanian observations, respectively.

Table 8: Selection Order Criteria

	Egypt (Obs.= 872)			Jordan (Obs.= 530)		
Variable	**Lags**	**FPE**	**AIC**	**Lags**	**FPE**	**AIC**
ROA	0	.005816	-2.30925	0	.002839	-3.02653
	1	.003831	-2.72679	1	.002051	-3.35136
	2	.003816	-2.73065	**2**	**.002025***	**-3.3644***
	3	.003821	-2.72925	3	.002032	-3.36063
	4	**.003806***	**-2.73321***	4	.00204	-3.35703

FPE = the Final Prediction Error, and **AIC** = Akaike Information Criterion.

5.4. Regression Results

Table 9 presents the comparative results of the initial pooled OLS regression model concerning the Egyptian and Jordanian samples. The model can explain 66.70% of profitability among the Egyptian firms. It reveals that the AEM, REM, and CS have significant positive regression coefficients of (0.074), (0.132), and (0.028) on ROA at a significant level of less than 1% respectively, indicating that the managerial preference to gain the maximum benefit through the complementary role of the available earnings management mechanisms towards improving the reported profitability levels.

The role of control variables in explaining the model can be presented as the following: the IFRS, LEV, SIZE, and GO have significant positive regression coefficients of (0.009), (0.073), (0.005) and (0.007) on ROA at significant levels of less than 5% and 1%, respectively. These results indicate that large firms are expected to achieve high profitability levels as a deep need to serve their higher leverage commitments to finance their growth opportunities, and the role of IFRS which did not limit the earnings management practices. On the other hand, the FD and the CR show significant negative regression coefficients of (-0.014) and (-0.020) at a significant level of less than 1%, indicating that the firms' inability to meet their short- term commitments due to the lower liquidity levels, and thus they cannot create a required profitability level that will end with the financial distress situation.

Table 9:Regression Results

	Egypt			Jordan		
Variables	Coeff.	P-Value	VIF	Coeff.	P-value	VIF
AEM	0.074***	0.000	1.25	-0.089**	0.019	1.18
REM	0.132***	0.000	1.28	0.169***	0.000	1.18
CS	0.028***	0.001	1.07	0.001	0.471	1.02
IFRS	0.009**	0.026	1.05			
FD	-0.014***	0.000	8.06	-0.001	0.256	4.04
LEV	0.073***	0.000	3.36	-0.009	0.547	3.54
CR	-0.020***	0.000	4.46	0.002*	0.096	1.88
SIZE	0.005***	0.000	1.65	0.005***	0.004	1.43
AQ	-0.004	0.362	1.25	0.007	0.163	1.22
GO	0.007***	0.000	1.22	0.013***	0.001	1.29
L.ROA	0.419***	0.000	1.86	0.473***	0.000	1.45
Constant	-0.195***	0.000	2.14	-0.100***	0.001	1.79
Dependent Variable	**ROA**			**ROA**		
R-squared	0.6743			0.4998		
Adj. R-squared	0.6670			0.4835		
Prob.> F	0.000			0.000		
Number of Obs.	730			445		
***** p<0.01, ** p<0.05, * p<0.10**						

Moreover, **Table 9** shows that the pooled OLS model can explain 48.35% of profitability among Jordanian firms. It reveals that the AEM has a significant negative impact of (-0.089) on ROA at a significant level of less than 5%. While the REM has a significant positive impact of (0.169) on ROA at a significant level of less than 1%. Hence, the managerial strategy is to adopt the real earnings management mechanism as a substitute to the accrual earnings management mechanism to attain the desired profitability levels within the tightness of the IFRS standards. Otherwise, the CS has an insignificant positive impact of (0.001) on ROA, indicating that the silent role of the classification shifting mechanism towards achieving the predetermined profitability levels that can be observed in the managerial behavior during the selection of accounting estimates within the IFRS standards.

The role of control variables in explaining the model can be presented as the following: the CR, the SIZE, and the GO have significant positive regression coefficients of (0.096), (0.005), and (0.013) on profitability at significant levels of less than 10%, 1%, and 1%, respectively. These results imply that the large firms are expected to attain higher profitability levels, have higher liquidity levels, and thus create many growth opportunities.

Lagged profitability ratio (L. ROA) has a significant positive impact of (0.419) and (0.473) on the current profitability ratio at a significant level of less than 1% among the Egyptian and Jordanian firms, respectively. This indicates that the current profitability ratio is influenced by the previous profitability levels, which was observed in the optimal lag selection order test (**Table 8Table 8**).

The researchers ran four OLS pooled Regression models, the first three models test the impact of each mechanism individually, and the fourth model tests the collective impact by inserting the three mechanisms as independent variables. The results of the first three models indicated the same significance and impacts that were explained by the fourth model that was tabulated.

6. **Discussion**

Signaling theory can explain the efficient role of earnings management mechanisms that can be reflected in their positive influences on the firms' performance. The efficient philosophy is followed by the Egyptian firms that is obviously reflected in the positive relationship between the three earnings management mechanisms and the firm performance. The Egyptian results promoted the income-increasing approach of the accrual earnings management, real earnings management, and classification shifting mechanisms, that adopted by the large firms that were interested in disclosing high profitability levels to finance their growth opportunities and serve their high leverage levels within the voluntary adoption of IFRS, that are agreed with the literature (Ayisi et al., 2021;Khuong et al., 2019; Al-Shattarat et al., 2018; Zalata and Roberts, 2017;Ghazali et al., 2015; Raoli, 2013). However, the study of Wening and Damayanthi (2021) highlighted the positive influence of accrual earnings management mechanism on firm performance from the agency and positive accounting theories. The agency theory could be observed in the inflated earnings to attain the managerial compensation plan and artificially improve the firm performance. Additionally, the positive accounting theory could explain the improved firm performance as an opportunistic act if it was occurred to postpone penalties of violating the debt covenants, since the Egyptian firms showed higher leverage levels with the higher profitability levels.

On the other hand, the Jordanian firms followed the efficient EM philosophy by applying the income- increasing approach of real earnings management mechanism that was supported by Hamza and Bannouri (2015) who indicated the efficient role of the real earnings management mechanism in improving the firms' profitability levels and abridging the opportunistic impact of the accrual earnings management mechanism. Furthermore, the efficient philosophy can be observed in the insignificant role of the classification shifting mechanism that is consistent with Al-Haddad et al. (2019). However, the opportunistic philosophy can be realized in the application of accrual earnings management mechanism and its negative impact on firm performance that agrees with the literature in Jordan (Dakhlallh et al., 2020; Alzoubi, 2016). The agency theory can explain the negative influence of accrual mechanism on firm performance to serve the compensation plan target and avoid the violation of debt covenants.

Finally, the complementary role of earnings management mechanisms can be observed in the Egyptian firms by showing the same signs of coefficients on firm performance, that is supported by the study of Ayisi et al. (2021) and can be explained

by the silent role of IFRS to limit the earnings management practices due to the absence of an effective institutional system in Egypt aligning with the study of Ebaid (2016). While the substitutional role of real earnings management mechanism over the accrual earnings management mechanism can be observed in the Jordanian firms by showing different signs of coefficients on firm performance, that is considered the swapping role between real earnings management mechanisms and accrual earnings management mechanism, as a routine procedure to attain the target earnings within the tightness of the regulatory framework. Moreover, the real earnings management mechanism has the most effect on the firm performance by showing the highest coefficient of (0.130) and (0.163) for the Egyptian and Jordanian firms, respectively. Thus, the three hypotheses are accepted for the Egyptian firms and the first two hypotheses are accepted for the Jordanian firms.

7. **Conclusion**

The current study investigates the influences of earnings management mechanisms on firm performance and conducts a comparison between the Egyptian and Jordanian firms during the period from 2014 to 2019. The Egyptian firms exploit the three earnings management mechanisms to appreciate their profitability levels and create more growth opportunities. While the Jordanian firms prefer the real earnings management mechanism over the accrual earnings management mechanism to maneuver the tightness of the mandatory adoption of IFRS standards and attain their earnings targets. The complementary role of earnings management mechanisms is evident in the Egyptian sample by employing more flexible accounting policies. However, the substitutional role of real earnings management mechanism over the accrual earnings management mechanism is obviously shown among the Jordanian firms. This can be attributed to the tightness of IFRS standards. Finally, both opportunistic and efficient philosophies are two opposite sides of earnings management. To elaborate, the positive results of the efficient philosophy may support the management opportunism by helping them reach their bonus plans. However, the negative results of the opportunistic EM philosophy may enable the firm to attain the financial analysts' targets and maintain its market position.

These results are directed to managers who are excessively applying the available earnings management mechanisms and abusing the flexibility of accounting standards, and thus they should realize their responsibilities in transmitting the financial information to stakeholders to avoid any future penalties and maintain their companies' reputation. Besides, this study provides several recommendations to regulators by observing vigilantly the managerial discretion provided by accounting standards to constrain opportunistic earnings management mechanisms particularly countries that do not fully adopt IFRS.

The research relies on return on assets as a proxy for the firm's performance, that focuses on the interests of managers and shareholders and ignores the market view of the firm performance. Future research can consider the market performance measures

such as Tobin Q, Price to earnings ratio (P/E), Earnings per share (EPS) to recover this limitation.

References

Abbadi, S., Hijazi, Q., and Rahahleh, A. (2016). Corporate Governance Quality and Earnings Management: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal, 10*(2), 54–75.

Ado, A. B., Rashid, N., Mustapha, U. A., & Ademola, L. S. (2020). The financial determinants of earnings management and the profitability of listed companies in nigeria. *Journal of Critical Reviews*, *7*(9), 31–36. https://doi.org/10.31838/jcr.07.09.06

Al- Matbouly, D. M. K. (2021). The Effect of Financial Leverage and other firm's characteristics on Real Earnings Management and Accrual Earnings Management: An Empirical Study on listed firms in the Egyptian Stock Exchange. *Scientific Journal for Financial and Commercial Studies and Researches (SJFCR), 2*(1), 54–126.

Al-Haddad, L., Gerged, A., & Saidat, Z. (2019). Managing earnings using classification shifting: Novel evidence from Jordan. *Academy of Accounting and Financial Studies Journal*, *23*(2), 1–14.

Al-Shattarat, B., Hussainey, K., & Al-Shattarat, W. (2018). The impact of abnormal real earnings management to meet earnings benchmarks on future operating performance. *International Review of Financial Analysis*.

Alareeni, B. (2018). The impact of firm-specific characteristics on earnings management: evidence from GCC countries. *International Journal of Managerial and Financial Accounting*, *10*(2), 85–104.

Alarussi, A. S., & Alhaderi, S. M. (2018). Factors affecting profitability in Malaysia. *Journal of Economic Studies*, *45*(3), 442–458.

Altman, E. I., Hartzell, J., & Peck, M. (1995). A Scoring System for Emerging Market Corporate Bond. *Salomon Brothers*.

Alzoubi, E. S. S. (2016). Audit quality and earnings management: Evidence from Jordan. *Journal of Applied Accounting Research*, *17*(2), 170–189. https://doi.org/10.1108/JAAR-09-2014-0089

Anagnostopoulou, S. C., Gounopoulos, D., Malikov, K., & Pham, H. (2021). Earnings management by classification shifting and IPO survival. *Journal of Corporate Finance*, *66*(1).

Anderson, M.C., Hyun, S. and Warsame, H. A. (. (2013). Corporate social responsibility, earnings management, and firm performance: evidence from panel VAR estimation. *2014 Canadian Academic Accounting Association (CAAA) Annual Conference, AAA 2015 Management Accounting Section (MAS) Meeting*. https://ssrn.com/abstract=2379826

Athanasakou, V., Strong, N. c., and Walker, M. (2009). Earnings Management or Forecast Guidance to Meet Analyst Expectations? *Accounting and Business Research*, *39*(1), 3–35.

Ayedh, A. M., Fatima, A. H., & Mohammad, M. H. S. (2019). Earnings management in malaysian companies during the global financial crisis and the coincidental effect of IFRS adoption. *Australasian Accounting, Business and Finance Journal*, *13*(1), 4–26. https://doi.org/10.14453/aabfj.v13i1.2

Ayisi, A. L., Wenfang, Z., Adu-Gyamfi, J., Sampene, A.K., and Charles, O. (2021). Accrual Earnings Management, Real Earnings Management and Firm Performance: a Panel Data Analysis. *EPRA International Journal of Economics, Business and Management Studies*, *May*, 37–47. https://doi.org/10.36713/epra7078

Ball, R., Robin, A. and Wu, J. S. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics*, *36*(1–3), 235–270.

Cain, C.A., Kolev, K.S., and McVay, S. E. (2020). Detecting opportunistic special items. *Manag. Sci.*, *66*(5), 2099–2119.

Callao, S., I. Jarne, J., andWroblewski, D. (2021). A Systematic Approach to the Motivations for Earnings Management: A Literature Review. *International Journal of Emerging Trends in Social Sciences*, *10*(1), 1–20. https://doi.org/10.20448/2001.101.1.20

Chakroun, S., and Ben Amar, A. (2021). Earnings management, financial performance and the moderating effect of corporate social responsibility: evidencefrom France. *Management Research Review*, *ahead-of-p*(ahead-of-print). https://doi.org/10.1108/mrr-02-2021-0126

Challen, A. E., and Siregar, S. V. (2012). Audit Quality on Earnings Management and Firm Value. *Finance and Banking Journal*, *14*(1), 30–43.

Chung, H., Kim, B. J., Lee, E. Y., & Sunwoo, H. Y. (2021). Debt financing and classification shifting of private firms. *Managerial Auditing Journal*, *36*(7), 921–950. https://doi.org/10.1108/MAJ-03-2020-2575

Cupertino, C. M., Martinez, A. L., andDa Costa, N. C. A. (2016). Consequences for future return with earnings management through real operating activities. *Revista Contabilidade e Financas*, *27*(71), 232–242. https://doi.org/10.1590/1808-057x201602520

Dakhlallh, M. M., Rashid, N., Wan Abdullah, W. A., Qawqzeh, H. K., & Mustafa Dakhlallh, A. (2020). Accrual-based earnings management, real earnings management and firm performance: evidence from public shareholders listed firms on Jordanian's stock market. *Journal of Advanced Research in Dynamical and Control Systems*, *12*(1), 16–27. https://doi.org/10.5373/JARDCS/V12I1/20201004

Debnath, N. C., Chowdhury, S. P., and Khan, S. (2021). Ownership structure and real earnings management: An empirical study on emerging economy. *Corporate Ownership & Control*, *18*(2), 74–89.

Dechow, P., Sloan, R., and Sweeney, A. (1995). Detecting Earnings Management. *The Accounting Review*, *70*(2), 193–225.

Dechow, P. M., and Sloan, R. G. (1991). Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics*, *14*, 51–89.

Dechow, P.M., Richardon, S. and Tuna, I. (2003). Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Studies*, *8*(2–3), 355–384.

DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, *17*((1-2)), 145–176.

Dewi, T., Pratomo, D., anddan Dillak, V. J. (2016). Pengaruh Manajemen Laba terhadap nilai Perusahaan dengan Kualitas Audit Sebagai Variabel Pemoderasi. *E-Proceeding of Management*, *3*(3), 3396–3402.

Dewi, S., & Wijaya, V. (2021). *The Effect of Earnings Management , Board Characteristics , and Firm Size to Firm Performance on Manufacturing Companies*. *4*(2), 155–163.

Dhuria, D., & Chetty, P. (2018). *Lag Selection and Cointegration test in VAR with Two Variables*. Project Guru.

Ding, R., Li, J., & Wu, Z. (2018). Government affiliation, real earnings management, and firm performance: The case of privately held firms. *Journal of Business Research*, *83*, 138–150.

Ebaid, I. E. S. (2016). International accounting standards and accounting quality in code-law countries: The case of Egypt. *Journal of Financial Regulation and Compliance*, *24*(1), 41–59. https://doi.org/10.1108/JFRC-12-2011-0047

El Deeb, M. S., and Ramadan, M. S. (2020). The Impact of Financial Distress, Firm Size, and Audit Quality on Earnings' Management Evidence from Companies listed in the Egyptian Stock Exchange. *Alexandria Journal of Accounting Research*, *4*(3).

El Sawah, T. (2019). The Impact of Adopting International Financial Reporting Standards (IFRS) on the Relationship between Audit Quality and the Readability of Annual Financial Report-Empirical Study on Egyptian Listed Companies. *Alexandria Journal of Accounting Research*, *3*(3), 246–314.

Ghazali, A. W., Shafie, N. A., & Sanusi, Z. M. (2015). Earnings Management: An Analysis of Opportunistic Behaviour, Monitoring Mechanism and Financial Distress. *Procedia Economics and Finance*, *28*(April), 190–201. https://doi.org/10.1016/s2212-5671(15)01100-4

Gill, A., Biger, N., Mand, H.S. and Mathur, N. (2013). Earnings management, firm performance, and the value of Indian manufacturing firms. *International Research Journal of Finance and Economics*, *116*(1), 121–131.

Graham, J. R., Harvey, C. R., and Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, *40*(1–3), 3–73.

Gunny, K. A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, *27*(3), 855–888.

Hamza, S. and Bannouri, S. (2015). The Detection of Real Earnings Management in MENA Countries: The Case of Tunisia. *Afro-Asian Journal of Finance and Accounting*, *5*(2), 135–159.

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, *7*((1-3)), 85–107.

Hessayri, M. and Saihi, M. (2015). Monitoring Earnings Management in Emerging Markets: IFRS Adoption and Ownership Structure. *Journal of Economics and Administrative Sciences*, *31*(2), 86–108.

Holthausen, R. W., Larcker, D. F., & Sloan, R. G. (1995). Annual bonus schemes and the manipulation of earnings. *Journal of Accounting and Economics*, *19*(1), 29–74.

Hung, M. and Subramanyam, K. (2007). Financial Statement Effects of Adopting International Accounting Standards: The Case of Germany. *Review of Accounting Studies*, *12*(4), 623–657.

Imeni, M., Fallah, M., & Edalatpanah, S. A. (2021). The Effect of Managerial Ability on Earnings Classification Shifting and Agency Cost of Iranian Listed Companies. *Discrete Dynamics in Nature and Society*, *2021*. https://doi.org/10.1155/2021/5565605

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *3*(4), 305–360.

Jiang, H., Habib, A., and Wang, S. (2018). Real Earnings Management, Institutional Environment, and Future Operating Performance: An International Study. *The International Journal of Accounting*, *53*(1), 33–53.

Jiang, Y. (2020). *Meanings, Motivations and Techniques of Earnings Management*. *496*, 141–146. https://doi.org/10.2991/assehr.k.201214.483

Jiraporn, P., Miller, G. A., Yoon, S. S., & Kim, Y. S. (2008). Is earnings management opportunistic or beneficial? An agency theory perspective. *International Review of Financial Analysis*, *17*(3), 622–634. https://doi.org/10.1016/j.irfa.2006.10.005

Jones, J. (1991). Earnings Management during Import Relief Investigations. *Journal of Accounting Research*, *29*(2), 193–228.

Karaman, A.S., Kilic, M., and Uyar, A. (2020). Green logistics performance and sustainability reporting practices of the logistics sector: the moderating effect of corporate governance. *Journal of Cleaner Production*, *258*.

Khuong, N., Ha, N., and Thu, P. (2019). The Relationship between Real Earnings Management and Firm Performance: The Case of Energy Firms in Vietnam. *International Journal of Energy Economics and Policy*, *9*(2), 307–314.

Klein, A. (2002). Audit Committee, Board of Directors Characteristics, and Earnings Management. *Journal of Accounting and Economics* , *33*(3), 375–400.

Krishnan, G. V. (2003). Audit quality and the pricing of discretionary accruals. *Auditing*, *22*(1), 109–126.

Kumar, M., Vij, M., and Goswami, R. (2021). Effect of Real Earnings Management on Firm Performance: Evidence from India. *Vision*. https://doi.org/10.1177/09722629211007577

Li, Y., Li, X., Xiang, E., & Geri Djajadikerta, H. (2020). Financial distress, internal control, and earnings management: Evidence from China. *Journal of Contemporary Accounting and Economics*, *16*(3), 100210. https://doi.org/10.1016/j.jcae.2020.100210

Liu, X.K., and Wu, B. (2020). Do IPO firms misclassify expenses? Implications for IPO price formation and post-IPO stock performance. *Management Science*, *67*(7), 4505–4531. https://doi.org/ 10.1287/mnsc.2020.3684.

Mahjoub, I., and Miloudi, A. (2015). Earnings management: A review of literature. *Euro and The European Banking System: Evolutions and Challenges.*, 691–703.

McVay, S. E. (2006). Earnings management using classification shifting: An examination of core earnings and special items. *Accounting Review*, *81*(3), 501–531. https://doi.org/10.2308/accr.2006.81.3.501

Monti-Belkaoui, J. and Riahi-Belkaoui, A. (1999). *The Nature, Estimation and Management of Political Risk*. Westport, CT: Greenwood Publishing.

Mostafa, W. (2018). Firms ' Financial Performance and Earnings Management : the Case of Egypt. *Alexandria Journal of Accounting Research*, *2*(1), 1–46.

Nagar, N. and Sen, K. (2017). Do financially distressed firms missclassify core expenses? *Accounting Research Journal*, *30*(2), 205–223.

Oruke, M., Iraya, C. M., Omoro , N. O., and Otieno, L. O. (2021). Earnings Management:A critical Literature Review. *African Development Finance Journal*, *5*(2), 15–24.

Peasnell, K.V., Pope, P.F., andYoung, S. (2005). Board Monitoring and Earnings Management: Do Outside Directors influence Abnormal Accruals. *Journal of Business, Finance, and Accounting*, *32*((7-8)).

Purnama, I., and Nurdiniah, D. (2019). Profitability, Firm Size, and Earnings Management: the Moderating Effect of Managerial Ownership. *Advances in Economics, Business and Management Research*, *73*, 41– 46. https://doi.org/10.2991/aicar-18.2019.10

Rahman, Md.J., and Xiong, N. (2021). Real Earnings Management Through Sales Manipulation and Firm Performance: Evidence from China. *Accountancy Business and the Public Interest*, *20*, 293–311.

Rakshit, D., and Paul, A. (2020). Earnings Management and Financial Distress: An analysis of Indian Textile Companies. *Journal of Economics and Public Policy*, *V*(3), 40–53.

Raoli, E. (2013). Do Managers in Earnings Management to support Firm's Market Valuation? *Corporate Ownership and Control*, *10*(2), 627–645. https://doi.org/10.22495/cocv10i2c3art5

Roychowdhury, S. (2006). Earnings Management through Real Activities Manipulation. *Journal of Accounting and Economics*, *42*(3), 335–370.

Sun, L., & Rath, S. (2008). Fundamental Determinants, Opportunistic Behavior and Signaling Mechanism: An Integration of Earnings Management Perspectives. *International Review of Business Research Papers*, *4*(4), 406–420.

Tabassum, N., Kaleem, A., & Nazir, M. S. (2015). Real Earnings Management and Future Performance. *Global Business Review*, *16*(1), 21–34.

Teoh, S. H., Wong, T.J., and Gita, R. (1998). Are accruals during an initial public offering opportunistic? *Review of Accounting Studies*, *3*, 175–208.

Walker, M. (2013). How far can we trust earnings numbers? What research tells us about earnings management. *Accounting and Business Research*, *43*(4), 445–481. https://doi.org/10.1080/00014788.2013.785823

Watts, R., and Zimmerman, J. L. (1986). *Positive Accounting Theory* (first edit). New Jersey: Prentice-Hall, Inc.

Watts, R. L., A., & Zimmerman, J. L. (1990). Positive Accounting Theory: A Ten Year Perspective. *The Accounting Review*, *65*(1), 131–156.

Wening, A.A.D.K., and Damayanthi, I. G. A. E. (2021). *Factors Affecting the Earnings Management of State-Owned Enterprises in 2010-2019*. *4*, 487–494.

Xiong, J. K. (2016). Chairman Characteristics and Earnings Management: Evidence from Chinese Listed Firms. *Open Journal of Accounting*, *5*, 82–94.

Yimenu, K. A., & Surur, S. A. (2019). Earning Management: From Agency and Signalling Theory Perspective in Ethiopia. *Journal of Economics, Management and Trade*, *24*(6), 1–12. https://doi.org/10.9734/jemt/2019/v24i630181

Yudha, P., Putri, A., Adi, K., & Saputra, K. (2021). *OPORTUNIST AND EFFICIENT PERSPECTIVE OF MANAGEMENT BASED ON THE MOTIVATIONAL ASPECTS*. *18*(8), 1629–1643.

Zalata, A. M., & Roberts, C. (2017). Managing earnings using classification shifting: UK evidence. *Journal of International Accounting, Auditing and Taxation*, *29*, 52–65. https://doi.org/10.1016/j.intaccaudtax.2017.04.001

Zamri, N., Abdul Rahman, R., and Isa, N. (2013). The Impact of Leverage on Real Earnings Management. *International Conference on Economics and Business Research 2013*, 86–95.