

Operating performance and manipulation of accruals

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CHRONICLE

ABSTRACT

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Taking the developing Egyptian market as its focal point, the aim of this research is to contribute to the earnings management literature. Due to the limited data available for the Egyptian market, this research examines earnings management based on the entire operating performance of companies. In particular, the question of whether ineffectively performing Egyptian companies engage in upward earnings management by devising and applying income-increasing policies was investigated. For the purpose of testing for income-increasing accruals, we examine whether discretionary accruals are greater for ineffectively performing firms than for effectively performing firms. The results show that ineffectively performing Egyptian companies are characterized by positive and considerably greater discretionary accruals when comparatively examined against effectively performing companies. A reasonable interpretation of these results is that ineffectively performing companies engage in earnings management practices, with the most likely mechanism being an opportunistic increase in their reported earnings. Overall, the findings of this study show that operating performance is a critical determinant of earnings management. In terms of the implications of these findings, it is necessary for officials within the Egyptian government to enhance the country's corporate governance processes, especially in view of the limitations surrounding law enforcement and investor safeguards.

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1. Introduction

Earnings management refers to the opportunistic utilisation of accounting procedures, techniques, and operations by firm managers to generate financial reports that present a biased picture of the company's financial performance (Beneish, 2001). Given the self-interested way in which managerial personnel sometimes employ such accounting techniques, one of the important outcomes of earnings management is a decline in earnings quality, paired with a diminishment in the trustworthiness of financial reporting (Dechow & Skinner, 2000). As emphasised by Sevin and Schroeder (2005), it is also the case that earnings management can undermine the interests of stakeholders, since investor and creditor decisions are primarily guided by reported earnings. Therefore, when firm managers self-interestedly employ accounting techniques to present a biased view of their company's financial performance, important earnings indicators become skewed, thus impairing the degree to which key stakeholders can make accurate decisions. Earnings management is defined as the modification of accounting accruals by firm managers for altering reported earnings, often facilitated via the exploitation of accounting decisions made within Generally Accepted Accounting Principles (GAAP), where the intention is to paint a disingenuously positive picture of the firm's financial position (Davidson et al., 1987). According to Roychowdhury (2006), types of accruals manipulations include; firstly, the selection of opportune and specific approaches to accounting that maximise the interests of managers; secondly,

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the employment of under-provisioning for debt expenses; and finally, the delaying of asset write-offs. Nevertheless, the opportunistic reporting behaviour of firms in reported earnings can also be occurred by attempting to change reported earnings through making suboptimal operating decisions on the timing and scale of structuring business transactions through real activities manipulations (Ewert & Wagenhofer, 2005). Recent US research explores the real activities manipulations manufactured by companies (Roychowdhury, 2006), the managerial compromises between real activities manipulations and accrual-based earnings management (Zang, 2012), and the implications of real activities manipulations for company operating performance (Gunny, 2010). Notably, a sequence of recent academic studies has examined the causal factors which give rise to real activities manipulations in various international settings and the degree to which real activities manipulations can replace accrual-based earnings management (Enomoto et al., 2015; Braam et al., 2015; Ipino & Parbonetti, 2017). The evidence suggests that country-level safeguards for investors, as well as legal systems, affect the level of real activities manipulations.

Noteworthy, the literature addressing earnings management has primarily centred around stock exchanges in the developed economies, a key implication being that the findings cannot be generalised to other world regions, in particular, emerging markets. Given the limited earnings management literature addressing emerging markets, the primary contribution of this study stems from its decision to centre on the Egyptian context. Nevertheless, dissimilar to the existing research addressing the developed economies, and in response to the limited data available for the Egyptian market regarding the relevant incentives and events which stimulate earnings management practices among managerial personnel, this study examines earnings management in Egypt based on the entire operating performance of firms. The motivation for investigating the connection between firm operating performance and earnings management primarily relates to the limited body of literature that currently exists around this issue. To be precise, this study seeks to investigate the question of whether ineffectively performing Egyptian companies are likely to implement earnings manipulation through the utilisation of income-increasing operations¹.

Based on previous studies, such as DeAngelo (1988), McNichols and Wilson (1988), Givoly and Hayn (2000), Barth et al. (2001) and Yoon and Miller (2002), we use cash flows from operations as our operating performance proxy. To distinguish between ineffectively and effectively performing firms, the data set was categorised into two groups, where the first contains firms reporting negative cash flows (representing firms demonstrating ineffective operating performance), while the second contains firms reporting positive cash flows (representing firms demonstrating effective operating performance). Earnings management is measured by discretionary accruals. Discretionary accruals estimations are made by employing the modified Jones model given in Dechow et al. (1995). In view of the Egyptian Stock Exchange's classification for its listed firms, the present study's sample group was divided into 8 industries, and the modified Jones model was fitted by each industry using 6-year panel data.

Based on the widely-employed accrual approach (DeAngelo, 1986; Jones, 1991; Defond & Jambalvo, 1994; Teoh et al., 1998a; Yoon & Miller, 2002), this research examines whether discretionary accruals are positive and significantly higher among ineffectively performing companies when compared to their effectively performing counterparts. Mean and median discretionary accruals difference tests are used to examine this issue. If ineffectively performing firms participate in income-increasing operations, then the average discretionary accruals, linked to these companies, is expected to be positive and significantly higher than they are for effectively performing firms. In line with the previously discussed approach to classifying a firm's operating performance, discretionary accruals difference tests are utilized for the negative cash flows group (i.e., ineffectively performing firms) against the positive cash flows group (i.e., effectively performing firms).

Mostafa and Ibrahim (2019) examined whether ineffectively performing firms are more engaged in earnings management practices than their effectively performing counterparts in the emerging market of Egypt. They used the regression analysis of the relationship between earnings and cash flows from operations to determine whether the strength of the relationship between earnings and cash flows differs between ineffectively and effectively performing firms. Mostafa and Ibrahim (2019) argued that if ineffectively performing firms are more engaged in earnings management than their effectively performing counterparts, the relationship between cash flows and earnings would be weaker in the former compared to the latter. The regression analysis method used in Mostafa and Ibrahim's (2019) study examines whether the pervasiveness of earnings management differs between ineffectively and effectively performing firms, but this method does not determine the direction of earnings management, i.e., whether earnings are managed upward (income-increasing) or downward (income-decreasing). However as stated above, the current study employs discretionary accruals approach to examine whether ineffectively performing firms engage in upward earnings management compared to their effectively performing counterparts. Therefore, this study differs from the study of Mostafa and Ibrahim (2019) because we focus on examining the direction of earnings management in ineffectively performing firms compared to effectively performing firms.

The results revealed that low operating performance companies are significantly more likely than their effectively performing counterparts to exhibit positive and higher discretionary accruals. Based on this, it is clear that managerial personnel within

¹ Ineffectively performing firms are sometimes referred to as low operating performance firms or as underperforming or low performing firms. Also, effectively performing firms are sometimes referred to as high operating performance firms or as high performing firms.

ineffectively performing Egyptian companies promote income-increasing policies for the purpose of elevating their reported earnings, thereby opportunistically and self-interestedly concealing their low performance. Hence, it is reasonable to conclude that for Egyptian firms, a significant relation exists between a company's operating performance and its earnings management strategy, which is to say, ineffectively performing firms seek to use earnings management techniques to offset their low performance. An important implication of this study's findings is that investors can employ an indicator other than earnings (e.g., as shown here, cash flows) to reliably shed light on an Egyptian company's operating performance. Therefore, investors can more effectively determine whether earnings should be used as the main indicator of profitability when making investment decisions. Another notable fact about this study's findings is that the link between ineffectively performing Egyptian firms and earnings management is consistent with the available literature addressing the phenomenon of income smoothing. Hence, it is reasonable to draw the conclusion that for Egyptian companies, just as is the case for firms in other examined countries, incentives exist to maintain a smoothed-earning series. Overall, based on these results and given that the Egyptian regulatory enforcement system is not robust; we recommend that the Egyptian corporate governance code should be reformed.

The remainder of this study is structured as follows. The next section reviews prior studies relevant to this study. Section 3 shows motivation for the study in the Egyptian context. Section 4 presents research question and hypothesis. Section 5 discusses research method. Section 6 shows variables definition and data selections. Section 7 provides empirical results and section 8 concludes with a summary and provides implications of the study.

2. Previous research

Identifying earnings management often relies on the accruals approach, which involves addressing the accruals management activities that managers are potentially employing in self-interested ways. The difference between earnings and cash flows from operating is referred to as total accruals, and this can be categorized into the following: firstly, non-discretionary accruals, which are the accounting modifications made to cash flows from operating at the request of the standard-setting body; and secondly, discretionary accruals, which are the accounting modifications introduced to cash flows at the discretion of managerial personnel. In the case of the latter, discretionary accruals are selected by using the generally accepted accounting principles (GAAP), which managers often use to self-interestedly manage earnings. As such, discretionary accruals can be used to proxy for the level of earnings management. Thus, the accruals approach examines whether the discretionary accruals patterns are aligned with certain incentives (Healy & Wahlen, 1999). Notably, when discretionary accruals are significantly positive, this is suggestive of upward earnings management (or income-increasing earnings management), while the converse is true for significantly negative discretionary accruals. Levitt (1998), the former Securities and Exchange Commission (SEC) chair, held a negative view towards earnings management, stating that it undermined the process and purpose of financial reporting. He divided earnings management techniques into five groups, including "big bath" charges, unsuitable revenue recognition, so-called "cookie jar" reserves, creative acquisition accounting, and abuse of the materiality concept. The high prevalence of the phenomenon of earnings management, especially since the 1980s, is undoubtable. Extensive research has been conducted to examine the factors which incentivize earnings management, with the literature suggesting issues such as income smoothing, contractual agreements, capital market issues, and the drive to lower political expenses and regulatory issues (Healy & Wahlen, 1999; Dechow & Skinner, 2000; Yoon & Miller, 2002). Income smoothing states that managers seek to moderate earnings variability across the years by shifting income from good years to bad years. Current income may be shifted to the future year or vice versa (see for example, Moses, 1987). To the extent that contracts, such as bonus plans (management compensation contracts) and debt covenants in lending contracts are based on accounting numbers, incentives for earnings management exist. The evidence reported from compensation contracts is consistent with the fact that managers use their discretionary judgment (selecting accounting procedures and accruals) to maximize their bonus awards (see for example, Healy, 1985). The evidence obtained from lending contracts purposes is consistent with the fact that firms that are close to breaching their lending covenants manage earnings by changing accounting methods or accruals to avoid debt-covenant violation (see for example, Defond & Jiambalvo, 1994). Capital-market motivations have been recognized as the most important incentive for managers to manage earnings (Dechow & Skinner, 2000). Given that accounting earnings are used by investors for equity valuation, this creates an incentive for managers to manipulate earnings to influence short-term stock prices (Healy & Wahlen, 1999). The findings supported that firms report positive discretionary accruals (income-increasing) prior to initial public offers (IPOs) (e.g., Teoh et al., 1998 A), and seasoned equity offers (SEOs) (e.g., Teoh et al., 1998 B). There is also evidence that firms use discretionary accruals to manage earnings upward to meet analysts' forecasts (Burgstahler & Eames, 1998). Moreover, Perry & Williams (1994) found evidence that discretionary accruals were significantly negative (income-decreasing) prior to the management buyouts (MBOs). Political costs can also lead managers to manage earnings. Watts & Zimmerman (1978) argued that, for political-costs issues (such as anti-trust regulation and other government regulation), managers are attracted to decreasing earnings on a temporary basis to increase the likelihood of a negotiated or regulatory outcome. Moreover, managers of firms seeking government subsidiary or protection may have similar incentives to understate earnings (Healy & Wahlen, 1999). Empirical research seems to support these contentions. For example, Jones (1991) supported the idea that managers decrease earnings during import-relief investigation. Cahan (1992) indicated that firms under investigation for anti-trust violations adopt downward earnings manipulations during investigation years. Han & Wang (1998) found that oil firms that expect increases in earnings resulting from sudden product price increases use accounting accruals to reduce earnings and, thus, their political sensitivities. In summary, the above review of some

earnings management studies suggests that some incentives lead managers to adopt income-increasing earnings management and that some other incentives lead them to adopt income-decreasing earnings management.

3. Motivation for studying earnings management within the Egyptian context

As a consequential political player in the Middle East, as well as a country with considerable regional influence, it is possible to characterize Egypt's institutional environment with reference to the following: firstly, as described by Moore (1995), a relatively inconsequential part played by the capital market in raising capital; secondly, a poor regulatory framework, along with underdeveloped controls for compliance monitoring (especially with respect to accounting standards and corporate punitive measures) (Ebaid, 2012); thirdly, an elevated level of conformity regarding financial accounting to taxation (Farag, 2009); and finally, generally ineffective conformance to the disclosure stipulations contained within the Egyptian Accounting Standards (Abdelsalam & Weetman, 2007). These characteristics of the Egyptian institutional environment are expected to allow managers to be engaged in greater earnings management activities. Also, these differences emphasise that the results of the existing studies addressing developed markets cannot be generalised to the Egyptian context, thus necessitating further research (Amir et al., 1993; Alford et al., 1993). In summary, the above factors suggest that earnings management is likely to differ in Egypt, and make it interesting to examine the occurrence of earnings management in the Egyptian firms. Thus, the present research intends to explore earnings management practices in the Egyptian context.

4. Research question and hypothesis

Based on the extensive body of literature that has investigated opportunistic earnings management among firm managers, researchers have assessed a variety of contributing factors and drivers associated with the phenomenon of earnings management. For example, Healy (1985) examined the degree to which managerial compensation influences earnings management, while in the studies conducted by DeAngelo (1986) and Perry and Williams (1994), the relationship between management buyouts and earnings management was explored. Other studies have examined the connection between earnings management and import relief (Jones, 1991), anti-trust (Cahan, 1992), debt agreements (Defond & Jiambalvo, 1994), initial public offerings (Teoh et al., 1998a), earnings forecasts (Burgstahler & Eames, 1998), issues of political costs (Han & Wang, 1998), and seasoned equity offers (Teoh et al., 1999b). Additionally, the more recent research published by Yoon & Miller (2002) investigated the relationship between the operating performance of a group of companies and the degree of earnings management.

With the current body of literature in mind, the purpose of this study is to extend the reported findings by utilising relevant tools, techniques, and frameworks to gain insight into earnings management in the Egyptian context. Nevertheless, in contrast to the available research, this study examines earnings management and its connection with the entire operating performance of companies. Noteworthy, this represents a significant departure from the central of the studies published in this area, most of which have sought to explore earnings management practices in the context of a certain event or incentive. The reason for this is because the available data relevant to the Egyptian context are sparse, the implication of which is that the phenomenon of Egyptian earnings management cannot be explored in relation to certain events or incentives. Furthermore, when compared to the existing literature, examining the connection between firm operating performance and earnings management represents a relatively novel area of investigation. Thus, the present study is concerned with investigating whether the degree to which an Egyptian firm performs effectively is linked to the phenomenon of earnings management. To be more precise, this study seeks to illuminate the research question (*RQ*) given below:

RQ: Do ineffectively performing Egyptian companies upwardly manipulate their accounting earnings?

In view of this *RQ*, it is clear that this study evaluates the question of whether ineffectively performing firms in the Egyptian market are associated with a greater probability of upwardly manipulating their accounting earnings. It is noteworthy that the findings of a variety of related publications in recent years appear to converge around the notion that incentives are an important predictor of the manner in which firm managers alter discretionary accruals. As such, it can be argued that ineffectively performing companies, particularly when considered alongside effectively performing companies, are more incentivized to manage their earnings upward, the primary motivator being to offset their poor performance. Therefore, the following hypothesis (*H*) is established to guide the present study's investigation of the *RQ*:

H: Ineffectively performing Egyptian companies have positive and significantly greater accruals when compared to their effectively performing counterparts.

The earnings management practices of effectively performing firms are used as a basis for assessing whether ineffectively performing firms engaged in upward earnings management. We assumed that ineffectively performing companies are more

incentivised to engage in earnings management when compared to their effectively performing counterparts and that there are no, or fewer, incentives for manipulating earnings by effectively performing firms².

5. Research method

5.1. Measuring firm operating performance

This study's definition of firm operating performance relies on the company's financial performance during the period reflecting actual economic results, in particular, the variable of cash flows from operating activities (e.g., McNichols & Wilson, 1988; DeAngelo, 1988; Givoly & Hayn, 2000; Barth et al., 2001; Yoon & Miller, 2002). The rationale for using cash flows from operations variable as the proxy for firm operating performance is due to (a) its robust nature, (b) the difficulties associated with modifying it, and (c) its lower probability of including transitory elements (that is, if managerial personnel avoid intentional front-loading, or postponements of cash recognition for accompanying revenues or expenses). This is consistent with Yoon and Miller's (2002) statement that the variable of cash flows from operating activities is an effective proxy of firm operating performance. As previously noted, this research categorises companies as either high (effective) or low (ineffective) operating performance firms based on cash flows from operating activities. In order to achieve this, the sample of listed Egyptian companies in this study was divided into two groups: a negative and positive cash flows group. Cash flows from operations were deflated by lagged total assets. Firms in the negative and positive cash flow groups were designated at low and high operating performance, i.e., ineffectively and effectively performing, respectively.

5.2. Measuring earnings management

Test statistics were used to examine the differences between the mean (namely, t-statistic) and median (namely, Wilcoxon z-statistic) values of discretionary accruals for low operating performance firms (negative cash flows group) and high operating performance firms (positive cash flows group). The analysis was performed to determine whether the discretionary accruals of negative cash flows companies were positive and higher than those of positive cash flows companies. Consistent with prior research, discretionary accruals are used as a proxy for earnings management. In line with Dechow et al.'s (1995) recommendation, the cross-sectional variant of the modified Jones (1991) model was used to estimate discretionary accruals. This model is marked by the way it applies independent estimation for each year, a process performed for all firms within a single industry. However, due to this study's small sample size (especially compared to those conducted in developed countries), the modified Jones model employed here generates an estimate using pooled cross-sectional and time-series regression for every industry category. The features of the modified Jones Model are given below.

$$TA_{it} / A_{it-1} = \alpha[1 / A_{it-1}] + \beta[(\Delta REV_{it} - \Delta AR_{it}) / A_{it-1}] + \gamma[PPE_{it} / A_{it-1}] + \varepsilon_{it} \quad (1)$$

where:

TA_{it}	Total accruals for firm i in year t
A_{it-1}	Total assets for firm i at the beginning of year t
ΔREV_{it}	The change in revenues for firm i in year t
ΔAR_{it}	The change in receivables for firm i in year t
PPE_{it}	The gross property, plant and equipment for firm i in year t
ε_{it}	Residuals

The modified Jones model lacking an intercept regresses total accruals on the following: firstly, the total assets' inverse at the beginning of year t ; secondly, consistent with Dechow et al. (1995), the difference between revenues and receivables alterations, after scaling by the total assets at year t 's beginning; and thirdly, the gross plant, property, and equipment, after scaling by the total assets at year t 's beginning. The difference between the total accruals and the fitted values of the total accruals (i.e., non-discretionary accruals) was considered the discretionary accruals value, thus meaning that discretionary accruals play the role of residuals for this model. In view of the way the Egyptian Stock Exchange divides its listed firms into 8 industry categories, the modified Jones Model in the present study is estimated for each of these categories using 6-year panel data. Noteworthy, the period used to estimate the modified Jones Model starts from 2011 to 2016 (denoted the estimation period), and this aligns with the event period. As shown in Section 2, the accrual approach is characterized by its centering on the determination of discretionary accruals, primarily because these, in contrast to nondiscretionary accruals, are subject to the manipulation of managerial personnel within a firm. Nevertheless, as noted by Healy and Wahlen (1999), estimation models for discretionary accruals are problematic owing to misspecification issues, thereby introducing error into the calculations. In

² Although this assumption was drawn, it should be noted that certain high operating performance companies are incentivized to manage their earnings downward (e.g., to bypass taxation or to reduce political expenses). However, such incentives to decrease earnings by effectively performing firms do not exist in the privatized public Egyptian firms that represent a large percentage of the sample firms in this study. In the privatized public Egyptian firms, there is considerable state ownership, and thus managers of these firms are inclined to use accruals opportunistically to bias earnings upwards (not downwards) to get higher compensation and to boost their firm's stock prices.

view of this and to introduce a robustness check, total accruals with respect to effective and ineffective operating performance firms are also examined in this research because they would be free from error.

6. Variables definition and data selections

The definition of variables in the present study has been heavily influenced by the literature. The variables of the study, reported in view of the Egyptian Accounting Standards (EASs), which represent the Arabic version of the International Accounting Standards (IASs), have been extracted using the financial statements issued by the firms in the sample of this study. These variables are defined as follows. First, earnings: this variable refers to the net income prior to preferred and common dividends (but following operating and non-operating income and expenses, provisions, extraordinary items, taxes, and minority interest) which is available to stockholders. Second, cash flows: as previously noted, cash flows from operations are utilized for the purpose of determining which firms within the sample can be classified as effective and ineffective performers with respect to issue of operating performance. In terms of how the cash flows variable is defined in this study, these constitute the net cash flows from the operating activities in which the firm is engaged, inclusive of net cash receipts as well as disbursements. Third, total accruals: this variable refers to the firm's total earnings minus its cash flows from operations. Fourth, revenues: this variable denotes a firm's overall sales (along with additional operating revenue) minus discounts, allowances, and returns (i.e., net sales). Fifth, receivables: this variable denotes a firm's trade receivables less the allowance for doubtful accounts (i.e., net trade receivables). Sixth, gross property, plant, and equipment: this variable denotes each of the aforementioned assets the firm holds in a certain year minus the accumulated provisions relating to depreciation, amortization, and depletion (i.e., net property, plant, and equipment). Seventh, total assets: this variable represents a firm's total assets, including advance payments of fixed assets (or investments), long-term investments, goodwill, net property plant, and equipment and other assets. The data of this study is obtained from Egypt for Information Dissemination (EGID)³ from 2010 to 2016. The study sample includes listed Egyptian firms that were included in the EGX 30 Index from 2003 to 2009. We initially collected all lists of the top thirty listed Egyptian firms included in the EGX 30 from 2003 to 2009 and thus identified 13 lists⁴. We then carefully checked the 13 lists to identify the firms and identified 72 firms, counting each firm only once irrespective of the firm being in one or more lists. The following criteria were used to select sample firms from amongst the 72 firms. First, firms should present their financial statements in Egyptian pound (L.E.). Second, firms must not be a part of the financial sector. Third, firms should have accounting data for at least one year over the period of the study (2010 to 2016). Using these three criteria, we reduced the sample size to 52 firms. Table 1 shows the initial sample size of the study.

Table 1

Initial sample of the study for listed Egyptian firms that were included in the EGX 30 Index over the period from 2003 to 2009

	Number of firms
Initial sample	72
Less	
1- Firms presenting their financial statements in currency other than Egyptian pound (L.E.)	(3)
2- Financial firms	(12)
3- Firms without accounting data through entire period 2010-2016	(5)
Sample size before excluding firms with insufficient data to calculate the study variables.	<u>52</u>

Data pertaining to those 52 firms was gathered for the 2010 to 2016 period, but the study begins with 2011 because changes in accounting items are employed for the purpose of estimating discretionary accruals. Consequently, 312 firm-year observations were identified for the 2011-2016 period. After removing missing observations (specifically, 25 firm-year observations) and eliminating 15 firm-year observations because they rose higher than and lower than 99% and 1%, respectively, of the variables' distribution, the final study sample was constituted of 272 firm-year observations. Hence, the 52-firm sample over the period from 2011-2016 included 272 firm-year observations.

Table 2

Distribution of the sample by industrial classification based on the Egyptian Stock Exchange classification

Industry	On the level of firm year observations from 2011 to	
	On the level of firms	On the level of firm year observations from 2011 to

³ Established in 1999, the EGID is a private and fully owned subsidiary of the Egyptian Stock Exchange. It is an information provider that provides the major Egyptian financial information to its users as well as Egyptian stock market data about the listed Egyptian firms. Further, this firm develops, sells, as well as supports information and technology solutions for the financial markets in the region.

⁴ The 13 lists of the EGX 30 Index are acquired from Egypt Corporation for Information Dissemination (EGID Corporation). The EGX 30 Index is revised twice a year, in February and August. Thus, there are two lists from firms that are included into the EGX 30 Index every year.

	Frequency	Percent	Frequency	Percent
Chemicals	8	.15	46	.17
Construction	12	.23	64	.235
Consumer and household goods	10	.19	53	.195
Entertainment	3	.06	11	.04
Food and beverages	4	.08	21	.08
Manufactured products	3	.06	13	.045
Real estate	6	.115	30	.11
Telecommunications	6	.115	34	.125
Total	52	1	272	1

Table 2 shows the distribution of the study sample based on the industrial classification of the Egyptian Stock Exchange. As observable in Table 2, the industrial classification names on the Egyptian Stock Exchange are as follows: firstly, chemicals; secondly, construction; thirdly, consumer and household goods; fourthly, entertainment; fifthly, food and beverages; sixthly, manufactured products; seventhly, real estate; and finally, telecommunications. For the purpose of dividing the study sample into analyzable industry categories for the estimation of discretionary accruals, this Egyptian Stock Exchange classification system was applied. In view of this, after dividing the firms into eight categories, the modified Jones model was estimated by pooling observations across over a 6 year period (the 2011-2016 period) for each industry. Noteworthy, this took place instead of a year-by-year regression, thus facilitating the estimation of one regression for every industry to have sufficient degree of freedom for the respective industry categories.

7. Empirical results

7.1. Descriptive statistics

We categorize the 272 firm-year observations (over the period 2011-2016) into one of two groups: either the negative cash flows group or the positive cash flows group. Table 3 gives an overview of the descriptive statistics regarding cash flows from operations and earnings for the negative cash flows group (48 observations, 18%) and the positive cash flows group (224 observations, 82%), along with the overall sample (272 observations, 100%). There is a 0.124 mean value for cash flows from operations for the complete sample, and a 0.110 mean value for earnings. This suggests that, compared to earnings, cash flows' mean is larger. Thus, the value of total accruals, on average, is negative. The earnings' standard deviation is 0.103, and cash flows' standard deviation is 0.15, indicating that, compared to cash flows, standard deviation of earnings is lower. We can expect this as managers use accruals to even out the cash flows' variations throughout years. Therefore, these results and those of US studies are consistent, such as those by Jones (1991), Subramanyam (1996), and Sloan (1996). The discretionary accruals' mean (median) is 0.079 (0.057) for negative cash flows group, -0.017 (-0.008) for positive cash flows group, and 0.001 (0.002) for the complete sample. This shows that the highest discretionary accruals are generated by negative cash flows group, the lowest by positive cash flows group, and the complete sample is in between. Further, the mean and median discretionary accruals for the negative cash flows group (ineffective operating performance firms) are positive and for the positive cash flows group (effective operating performance firms) are negative. These results are based on discretionary accruals figures, however; they can also be applied to total accruals since a comparable configuration of results for discretionary accruals holds for total accruals. Overall, these results show that negative cash flows group firms conducted earnings management activities over the study period, in particular by utilizing income-increasing accounting practices. Contrastingly, for positive cash flows group, the negative total accruals value is unsurprising, since the expectation is that the total accruals within industrial companies will be negative. It is important to recognize that we examined the distribution of industries for negative cash flows group firms and positive cash flows group firms, confirming that industry-clustering is unlikely to present a problem for the present study⁵.

Table 3

Descriptive statistics of the variables

	Entire sample			Negative cash flows group			Positive cash flows group		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
Earnings	0.110	0.087	0.103	0.048	0.031	0.082	0.125	0.099	0.101
Cash flows from operations	0.124	0.088	0.150	-0.056	-0.037	0.059	0.162	0.114	0.138
Total accruals	-0.014	-0.016	0.111	0.104	0.075	0.128	-0.038	-0.028	0.093
Discretionary accruals	0.001	0.002	0.091	0.079	0.057	0.108	-0.017	-0.008	0.077

Notes:

- Earnings, cash flows from operations, total accruals, and discretionary accruals are scaled by total assets at the start of year t .
- Negative and positive cash flows groups are defined as in Section 5.1.
- The number of firm-year observations for a sample of 52 Egyptian firms over 6 year periods (2011 to 2016) for entire sample, negative cash flows group and positive cash flows group is as follows respectively: 272, 48 and 224.

7.2. Results of earnings management test

After performing statistical tests to illuminate the question of whether significant disparities were observable between the mean total accruals and mean discretionary accruals for negative cash flows group against positive cash flows group, t -statistics and p -statistics were generated. These are presented in Table 4. Since the study's first forecast was concerned with the direction of the statistically significant disparities (see Section 5.2), one-tailed t -statistics and p -values were utilized. When

⁵ The consequence of this is that negative and positive cash flows groups include firms from each of the 8 primary industry categories utilised in this study.

compared to the positive cash flows group (effectively performing firms), two key findings emerged from the results: firstly, that the means were positive for the negative cash flows group (ineffectively performing firms); and secondly, that the means for the negative cash flows group (ineffectively performing firms) were also significantly higher (significant at the level of 0.0000). Regarding total accruals and discretionary accruals, the disparity between each group's means amounted to 0.124 (t -statistic = 8.818) and 0.096 (t -statistic = 7.149), respectively.

The research hypothesis (see Section 4) was reinforced by these results, with the data in Table 4 indicating that upward earnings management is characteristic of ineffectively performing Egyptian companies. This finding is reflected in the data showing that when comparatively examined against the firms in the positive cash flows group, the firms in the negative cash flows group were associated with positive and significantly higher total accruals and discretionary accruals. Therefore, the data given in Table 4 are supportive of the research hypothesis that ineffectively performing Egyptian companies have positive and significantly greater accruals when compared to their effectively performing counterparts. Noteworthy, Yoon and Miller (2002) reported consistent results, showing that when firms are operating ineffectively, managerial personnel tend to adopt measures to conceal their poor financial status through upward earnings management. However, the study of Yoon & Miller (2002) also reported that while low operating performance companies are characterized by an increased likelihood of engaging in income-increasing activities, companies with severely impaired operating performances are associated with the 'big-bath'. Additionally, their study reported that when firms are characterized by a highly-effective operating performance, they are more likely to promote income-decreasing activities. Taken together, the results given in the present study are consistent with the literature, thereby lending credence to the idea that a variety of earnings management practices are spurred on by different types of incentives (Healy, 1985; Jones, 1991; Defond & Jiambalvo, 1994; Teoh et al., 1998a; Teoh et al., 1998b; Yoon & Miller, 2002). To be more precise, this study's results indicate that a statistically significant relationship exists between ineffectively performing Egyptian companies and the emergence of earnings management.

Table 4
Mean accruals (total accruals and discretionary accruals) difference tests

Accruals	Mean			T-stat	P-value
	(1) Negative cash flows group	(2) Positive cash flows group	Difference (1-2)		
Total accruals	0.104	-0.038	0.142	8.818	0.0000
Discretionary accruals	0.079	-0.017	0.096	7.149	0.0000

Notes:

- a. Total accruals and discretionary accruals are scaled by total assets at the start of year t .
- b. Negative and positive cash flows groups are defined as in Section 5.1.
- c. The number of firm-year observations for a sample of 52 Egyptian firms over 6 year periods (2011 to 2016) for negative cash flows group and positive cash flows group is as follows respectively: 48 and 224.
- d. T-stat is the T-statistic along with P-value (one-tailed test) of the corresponding difference.

Table 5 presents the z -statistics and p -values for the significant difference tests that were applied for the medians of total accruals and discretionary accruals for the groups of low operating performance companies (i.e., the negative cash flows companies) and high operating performance firms (i.e., the positive cash flows companies). Noteworthy, the results are identical to those of the significant differences for the means (presented in Table 4), thus providing additional reinforcement to the research hypothesis. A reasonable interpretation of the results reported here is that a statistically significant relationship exists between accruals size (total accruals and also discretionary accruals) and the overall operating performance of an Egyptian company. An especially notable observation is that when companies are performing ineffectively, they are more likely to display positive accruals which are higher than the accruals of high operating performance companies. Therefore, the conclusion can be drawn that the phenomenon of upward earnings management is widespread among ineffectively performing companies, a finding that can be accounted for by referencing its compatibility with the notion that such firms are more likely to search for ways in which to offset their weak performance. In the following section, the implications of this conclusion are examined.

Table 5
Median accruals (total accruals and discretionary accruals) difference tests

Accruals	Median			Z-stat	P-value
	(1) Negative cash flows group	(2) Positive cash flows group	Difference (1-2)		
Total accruals	0.075	-0.028	0.103	9.221	0.0000
Discretionary accruals	0.057	-0.008	0.065	6.121	0.0000

Notes:

- a. Total accruals and discretionary accruals are scaled by total assets at the start of year t .
- b. Negative and positive cash flows groups are defined as in Section 5.1.
- c. The number of firm-year observations for a sample of 52 Egyptian firms over 6 year periods (2011 to 2016) for negative cash flows group and positive cash flows group is as follows respectively: 48 and 224.
- d. Z-stat is the Z-statistic along with P-value (one-tailed test) of the corresponding difference.

8. Summary, conclusion and implications

The purpose of this research has been to investigate the phenomenon of earnings management within a sample group of Egyptian firms. Since relatively few publications have explored the topic of earnings management in the context of emerging markets, the present study has valuably contributed to the literature. In particular, this research has sought to illuminate the relationship between managerial personnel's motivation to engage in upward earnings management and the variable of operating performance (i.e., high operating performance and low operating performance). The hypothesis was established that when comparing effectively performing firms to ineffectively performing firms, the latter are more likely to engage in upward earnings management as a way to conceal their poor financial condition. The results of this study show that ineffectively performing firms are associated with a greater likelihood of utilising income-increasing strategies when compared to effectively performing firms. Two main interpretations of this result exist: firstly, that managerial personnel within ineffectively performing firms are incentivized to engage in upward earnings management when their compensation is linked with earnings, thereby meaning that ineffective performance creates a strong motivation among these individuals to elevate discretionary accruals; and secondly, that because stock prices are closely linked to a firm's earnings figures, managerial personnel are incentivized to engage in upward earnings management to elevate its stock price. As indicated by previous research, earnings management can be viewed as a self-interested or a beneficial activity. The results of this study which show that low operating performance firms engage in upward earnings management to hide their low performance can be interpreted as indicating that earnings management within listed Egyptian firms with low performance is the results of opportunistic managerial behaviour. Hence, the value relevance of such firms' reported earnings is limited, thereby undermining the degree to which investors can depend on this information. Since this study investigated the link between earnings management and the entire operating performance of firms in the Egyptian context, it has not illuminated the incentives, motivations, and drivers of the phenomenon within companies. However, as previously noted, the existing studies that have previously examined such issues in the developed economies (e.g., the US and UK) were able to do so due to the high-quality data available, while this is not the case in the Egyptian capital market. Hence, in the coming years, the accessibility of data of this kind is expected to increase in Egypt, thus meaning that researchers may soon be able to select a certain incentive on which to perform statistical tests, thus uncovering potential correlations between targeted incentives and discretionary accruals. Such research will be valuable because the factors, causes, and incentives which give rise to the phenomenon of earnings management are context-specific. Hence, it is reasonable to expect that in the case of Egypt, which is characterized by a culturally and politically dissimilar institutional landscape when compared to the countries in which incentive-focused studies already exist, the identified incentives will differ. As such, in the future, culturally-specific interpretations of managerial conduct with respect to the issue of earnings management within Egyptian companies are required. For instances, these incentives may include debt agreements, import relief, political costs, and the compensation received by managerial personnel. In the event that future studies uncovered a close correlation between incentives of this kind and self-interested earnings management, then researchers could draw the conclusion that Egyptian companies allow managers to extract short-term profits in favour of safeguarding shareholder interests. Were this to be the case, then the argument for increasing regulations and corporate governance mechanisms in Egypt would be robust. Nonetheless, even based on the findings of the present study, the implication is that strengthening Egypt's corporate governance mechanisms would elevate the degree to which the country's financial statements are transparent, reliable, and informative. In turn, this would be likely to result in elevated protections for minority shareholders, paired with increasing levels of investment.

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