

ACCRUAL AND REAL EARNINGS MANAGEMENT IN BOTH STATE-OWNED AND PRIVATELY-OWNED EGYPTIAN COMPANIES

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Abstract

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This study aims to explore the difference between the level of both types of earnings management; Accrual Earnings Management (AEM) and Real Activity Earnings Management (REM) between state and privately owned Egyptian companies. Using a sample of non-financial state and privately owned companies over the period from 2010 to 2017, with 1030 firm-year observations. The results reveal that there are no significant differences in the level of both AEM and REM using the two proxies; sales manipulation and discretionary expenses; between state and privately owned firms. This result could be attributed to the Egyptian government's attempt to eliminate the differences between state-owned and private owned companies, especially in recent years.

Keywords: Accrual Earnings Management, Real Earnings Management, State Ownership

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1. INTRODUCTION

The earnings management practices are classified as either the change in the accrual process (AEM) or the deviation from normal business activity (REM). In AEM, managers intervene in the financial reporting process by exercising discretion and judgment regarding accounting choices. REM, on the other hand, requires departing from normal operations, driven by the desire of managers to deceive at least some stakeholders to consider that the reported financial performance has been achieved from normal operations (Kothari, Mizik & Roychowdhury, 2015). Those earnings management types are managers' decisions to alter a current period's earnings to achieve temporary goals that may adversely affect the firm's long-term value maximization objective.

In terms of agency problems, the complex nature of state-owned companies (SOs), it is important to compare it with the privately-owned ones (POs). In the SOs, there is an additional agency relationship compared POs, as the controlling owners are themselves agents of the real owner (the state) (Ding, Zhang & Zhang, 2007). It is broadly argued that state companies practice earnings management more than private ones. This argument is based on the following reasons; first, due to reasons such as governmental interference, low compensations, the lack of competition, corporate inefficiency and poor governance, misallocations of resources, and unethical behaviors such as corruption and fraud (Boardman & Vining, 1989). Second, agency problems are more severe in SOs than in POs due to the various forms of conflicts including those between the state and minority and between state and managers (Wang & Yung, 2011).

Moreover, it is difficult to mitigate conflicts among various interest parties in state firms because SOs often have a high layered organizational hierarchy where information is often distorted as it moves from level to level. In short, these conflicts increase information asymmetry, and limits oversighting to exacerbate agency problems in government companies and leads to more opportunistic behaviors by management such as earnings management (Wang & Yung, 2011).

However, other studies found the opposite; managers in SOs do not have the same pressure as their counterparts in POs to manipulate earnings for many reasons. First, the debt covenant restrictions are minimal in SOs as debt financing is rarely used among SOs (Liu & Lu, 2002). Second, the incentives or compensation systems between SOs and POs are different (Aharony, Lee & Wong, 2000; Afify, 2013). Third, Government can act as a strong external observer and safety valve against the opportunistic behavior of management (Wang & Yung, 2011; Afify, 2013). Despite the existence of many state owned enterprises in Egypt, however, the majority of studies examining the phenomenon of earnings management concentrated on accrual earnings management and did not address to SOs separately to find out the extent to which SOs differ from POs due to the special nature of agency relationships and agency problems. Consequently, the problem of this study can be summarized as follows:

1. Is there a significant difference between AEM in the Egyptian state-owned companies and Egyptian privately-owned companies?

2. Is there a significant difference between REM in the Egyptian state-owned companies and Egyptian privately-owned companies?

Accordingly, this study extends the existing literature of accrual earnings management, to explore the difference of earning management practices based on ownership structure in the Egyptian context. Thus, this study attempts to fill the literature gap concerning real activity earnings management in Egypt by examining it for both state and private companies.

The rest of this paper is organized as follows: Section 2 provides literature review and hypothesis development. Section 3 presents study population and sample. Section 4 discusses variables measurement. Section 5 presents the results. Section 6 provides the conclusion.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

It is broadly thought that SOs practice earnings management more than POs. This belief is attributed to factors of corporate inefficiency, agency problems and poor governance and monitoring. Empirically, numerous studies examined the relation between the state ownership and earnings management. However, the empirical evidence provided by these studies is mixed. Li et al. (2011) examined the effect of different types of ownership on the level of earnings management, using a sample of 544 Chinese companies from 2004 and 2007. The results confirmed that companies with more state-owned shares have a fairly high level of earnings management due to more agency problems. Liu et al. (2014) and Gaio and Pinto (2018) also report that the

POs are better than SOs as to the level of earnings quality.

On the other hand, using a sample of Chinese firms during the period from 1998 to 2006, Wang and Yung (2011) concluded that SOs are less likely to practice AEM compared to POs because the government might act as a strong external observer against opportunistic behavior in the SOs. Another study suggests that SOs engage in less earnings management activities than POs due to the financial support from the government to the SOs or because the state shareholders do not care much about the share price, as do private shareholders (Yang, Chi & Yung, 2012). In Egypt, Afify (2013) examined the effect of ownership concentration on the AEMs for a sample of 94 state and privately owned companies during 2009. The results showed that there are lower levels of earnings management among state companies than private ones due to the difference between rewarding systems between SOs and POs. Moreover, government may act as a strong external observer and safety valve against the opportunistic behavior of the management, or due to the effective role of the governmental oversight agencies (such as the accountability state authority (ASA) in Egypt).

It appears from the aforementioned studies that most of them are applied in foreign emerging economies (like China). In addition, the investigation of the REM practices is scarcely reported. On the other hand, despite the existence of many state-owned companies in Egypt, there are but quite few research studies that examined the AEM practices as related to ownership type in the Egyptian environment and to the researcher's best knowledge, no study investigated the REM practices in the Egyptian SOs. Based on findings of the previous studies, agency problems should result in more earnings management in SOs than POs, whereas the effective role of the government and the weaker incentives should cause less earnings management in SOs than POs. It is difficult to predict the overall level of earnings management for SOs vs. POs in Egypt. Consequently, the study hypotheses are formed as follows:

H1: There is no difference between the level of accruals earnings management in SOs and POs in Egypt.

H2: There is no difference between the level of real-activity earnings management in SOs and POs in Egypt.

3. STUDY POPULATION AND SAMPLE

The population of the study includes all Egyptian companies listed on Egyptian stock exchange distributed over 15 economic sectors, namely, Food and Beverage, Basic resources, Chemicals, Construction and materials, Healthcare and Pharmaceuticals, Industrial Goods and Services and Automobiles, Real Estate, Personal and household products, Telecommunications, Travel and Leisure, Retail, Utilities, Oil and Gas, Media, and Technology¹.

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

¹ Banking and financial services sectors are excluded for their unique financial reporting and legal requirements.

market during the period 2010 - 2017. The sample firms are restricted by the availability of necessary data required to measure the different variables. Tables (1) and (2) show the final sample of the study

according to the sectoral distribution of the Egyptian Stock Exchange and the percentage of the sample size to the population.

Table 1. The percentage of sample size to the population

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

Table 2. Sectoral distribution of the final sample

No	Sector	2010	2011	2012	2013	2014	2015	2016	2017	Total	%
1	Food and Beverage	22	22	22	22	22	21	21	20	172	17
2	Basic resources, Utilities and Oil and Gas	11	11	11	11	11	11	11	11	88	8
3	Chemicals	7	7	7	7	7	7	7	7	56	5
4	Construction and materials	23	23	23	23	23	23	23	23	184	18
5	Healthcare and Pharmaceuticals	11	11	11	11	11	11	11	11	88	9
6	Industrial Goods and Services and Automobiles	14	14	14	14	14	14	14	14	112	11
7	Personal and household products	10	10	10	10	10	10	10	10	80	8
8	Travel and Leisure	10	9	9	10	10	10	10	10	78	7
9	Real Estate	17	17	17	17	18	18	18	18	140	14
10	Media, Telecom. and Technology	4	4	4	4	4	4	4	4	32	3
Total		129	128	128	129	130	129	129	128	1030	100%

4. VARIABLES MEASUREMENT

4.1. Accrual earnings management (AEM)

Discretionary accruals (DA) will be used as a proxy to measure AEM by the modified Jones model of Dechow et al. (1995) where the model is estimated cross-sectional for every sector and year at a minimum of 6 observations. Dechow et al. (1995) estimate the modified version of Jones (1991) model to estimate DA as the residual from following model:

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

where, for fiscal year t and firm i , TAC represents total accruals which calculated by the difference between the earnings before extraordinary items and discontinued operations and operating cash flows.

$TA_{i,t-1}$ - Total assets at end of the previous fiscal year ($t-1$) for company (i).

$\Delta REV_{i,t}$ - The change in revenues from the preceding year for company (i).

$PPE_{i,t}$ - Property plant & Equipment at year (t) for company (i).

$\Delta REC_{i,t}$ - The change in net receivables from the preceding year.

4.2. Real activity earnings management (rem)

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

$$\frac{CFO_t}{TA_{t-1}} = \beta_1 \left(\frac{1}{TA_{t-1}} \right) + \beta_2 \left(\frac{s_t}{TA_{t-1}} \right) + \beta_3 \left(\frac{\Delta S_t}{TA_{t-1}} \right) + \varepsilon_t \quad (2)$$

where,

CFO_t - Cash flow from operation.

TA_{t-1} - Total assets at the beginning of period t .

s_t - Sales of period t .

The ACFO (the first proxy for REM) equals the actual CFO minus the "normal" level of CFO calculated by using the estimated coefficient from Equation (2) for each industry and year.

The normal level of the sum of discretionary expenses are estimated by Roychowdhury (2006) using a cross-sectional regression for each year and industry as follows:

$$\frac{DISX_t}{TA_{t-1}} = \beta_1 \left(\frac{1}{TA_{t-1}} \right) + \beta_2 \left(\frac{S_{t-1}}{TA_{t-1}} \right) + \varepsilon_t \quad (3)$$

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

For every firm-year, the abnormal discretionary expenses (ADISX), estimated by the residual from Equation (3), is the difference between actual discretionary expenses and the estimated normal discretionary expenses.

According to the above discussion, the second hypothesis presented in Section 3 divided into two sub-hypotheses as follows:

H2-a: There is no significant difference between the level of sales manipulation in SOs and POs in Egypt.

H2-b: There is no significant difference between the level of discretionary expenses manipulation in SOs and POs in Egypt.

5. THE RESULTS

5.1. Descriptive statistics

Table (3) presents descriptive statistics for the full sample of 1,030 firm-year observations. Approximately 31% of the sample firm-year observations are state-owned (323 observations) and the rest (707 observations) represent private sector companies. The descriptive statistics for the full sample are shown in Table (3), Tables (4) and (5), respectively, show descriptive statistics of SOs and POs subsamples. The median (mean) of discretionary accruals (DA) in Egyptian companies is - 0.2% (0.000) and falls between - 88.2% and 59.3% of total assets. This implies that AEM in Egypt is more severe than in other countries such as USA based on Xie et al. (2003) who find that discretionary accruals in USA fall between - 27% and 67% of total assets. Also in China, Cheng et al. (2015) find that discretionary accruals fall between - 22% and 40% of total assets. The average percentage of discretionary accruals for state-owned companies is - 0.2 % with a range between - 36 % and 35 % of total assets, which is less than privately-owned companies, which is 0.1 % with a range between - 88 % and 59 % of total assets.

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

Table 3. Descriptive Statistics for the full sample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	.000	.106	-882	.593	-.048	-.002	.047
ACFO	-.001	.108	-.542	.521	-.046	.0001	.044
ADISX	.000	.040	-.239	.167	-.011	.003	.018

Table 4. Descriptive statistics for the state-owned subsample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	-.002	.090	-.363	.348	-.045	-.003	.049
ACFO	-.014	.108	-.542	.393	-.055	-.006	.029
ADISX	.001	.040	-.191	.115	-.009	.005	.021

Table 5. Descriptive statistics for the privately-owned subsample

Variable	Mean	Std. dev.	Min.	Max.	25%	50%	75%
DA	.001	.112	-.882	.593	-.051	-.002	.047
ACFO	-.005	.108	-.511	.521	-.043	.003	.051
ADISX	.000	.039	-.239	.167	-.013	.002	.017

5.2. Testing hypotheses

T test, as a parametric method, can be used to test the study hypotheses; however, the parametric method assumes the variables follow the normal distribution. Since the normality assumption has not been met, Mann-Whitney test, as a non-parametric method corresponding to the T test is also used to test the hypotheses. Mann-Whitney test is used to examine differences in the absolute value for earnings management proxies (DA, ABCFO, and ADISX) between state and privately owned firms. The absolute values of earnings management proxies are used as the magnitude rather than the direction which reflects the level of earnings management. Table 6 provides results of Mann-Whitney test. The results show that there are no significant differences in the level of accrual earnings management and real earnings management using, both sales manipulation and discretionary expenses between state and privately owned firms and, therefore, fail to reject *H1*, *H2-a*, and *H2-b*. This result contradicts the results of many previous studies (e.g. Li et al., 2011; Wang & Yung, 2011; Liu et al., 2014; Guo & Ma, 2015; Cheng et al., 2015; Gaio & Pinto, 2018), which found a difference in the level of earnings management between state and privately-owned companies. This result could be attributed to the Egyptian government's attempt to eliminate the differences between state-owned and private owned companies, especially in recent years such as requiring public sector companies to apply Egyptian accounting standards, stopping subsidies to the state-owned companies, encouraging the state-owned companies to finance their projects through capital market, separating the economic objectives of the companies and the social objectives of the state and issuing the Egyptian code of corporate governance for state-owned companies.

Table 6. Results of Mann-Whitney test for the level of earnings management types for state and private companies

	ACFO	ADISX	DA
Z	-1.622	-1.227	-1.336
Asymp. Sig. (2-tailed)	.105	.220	.181

6. CONCLUSION

This study explores the difference in the level of earnings management between state-owned and privately owned Egyptian companies. Three proxies for measuring accrual and real earnings management; namely discretionary accruals,

abnormal cash flows, and abnormal discretionary expenses are employed. Using a sample of non-financial companies containing state owned and privately owned companies over the period from 2010 to 2017, with 1030 firm-year observations. The results reveal that there are no significant differences in the level of accrual earnings management and real earnings management using the three proxies (i.e. sales manipulation and discretionary expenses) between state and privately owned firms. This result could be attributed to the Egyptian government's attempt to eliminate the differences between state-owned and private-owned companies, especially in recent years.

The results are likely to be helpful in assessing accounting information quality and management's ability in manipulating earnings and, therefore, rationalize their investment decisions. Additionally, the findings enable the regulators to refine existing governance systems and thus enhance investor protection. For researchers, this study provides new empirical evidence on the earnings management phenomenon in state-owned companies. Moreover, the results show that managers in Egyptian companies engage in both accrual and real earnings management to achieve earnings targets.

The findings of this study suggest that state-owned companies practice both accrual and

real earnings management. Further research on the incentives of earnings management phenomena in Egyptian state-owned companies is still needed. One possible avenue of future research is to explore earnings management by Egyptian banks and financial institutions and the role of monitoring mechanisms therein. Another interesting avenue for future research is conducting earnings management research under the informational or efficient hypothesis.

Finally, there are three important limitations to this study:

1. The literature indicates that accruals models lack power due to the likelihood of misclassifying the discretionary and non-discretionary accruals. Therefore, the findings of this study are likely to be conditional on the ability of these models to appropriately isolate the discretionary accruals component.

2. Only two proxies are used for measuring REM (i.e. ACFO and ADISX). Overproduction proxy was not used because it requires a sample from manufacturing companies only.

3. This study is limited to examining the difference in the level of earnings management between state-owned and privately-owned companies regardless of the incentives for each type of ownership to practice earnings management.

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