Investigating The Impact Of Historical Costing On Real Earnings Management: An Empirical Study

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ABSTRACT

The current study examines the relationship between Historical Cost Accounting (HCA) and real earnings management. Accounting literature argues that HCA provides a chance for manipulation. HCA creates large unrealized capital gains/losses that are recognized in income statements only when managers decide to sell such assets. This may induce managers to manipulate earnings. Moreover, managers are able to decide which assets to sell and during which period. Therefore, managers can exploit HCA in real earnings management by interfering in the structuring of asset sale transactions.

The current study aims to contribute to the ongoing debate over dropping HCA and replacing it with Fair Value Accounting (FVA). Using a sample of the 71 most actively traded non-financial firms listed on the Egyptian Stock Exchange during 2004–2010, multiple regression analysis is employed to test two main hypotheses: the income-smoothing hypothesis and the debt/equity hypothesis.

The results provide evidence that managers in the Egyptian business environment exploit HCA in real earnings management to some extent. Managers with negative earnings changes tend to use HCA to smooth earnings, while managers with earnings changes do not. Moreover, there is no evidence for managers' use of HCA to avoid violating debt contract terms based on accounting numbers.

Keywords: Historical Cost Accounting; Real Earnings Management; Income-Smoothing; Asset Sales

INTRODUCTION

Accounting aims to provide relevant, accurate, and reliable information on a timely basis to present and potential users of financial reports. To achieve this aim, the Generally Accepted Accounting Principles (GAAP) should be flexible enough to enable managers to convey the real performance of firms. The accounting literature provides strong evidence that managers use GAAP flexibility to alter accounting numbers. The literature also shows that altering accounting reports has several negative consequences on the usefulness of accounting information, firms' value, and economic resource allocation. Moreover, accounting has been suggested as being one of the main reasons for the worldwide financial crises of the last decade. Consequently, continuous attempts are being made to reduce such harmful practices by reducing the flexibility of accounting standards.

However, it has been found that managers engage in real earnings management when less flexible accounting standards are applied. Managers think that real earnings management (REM) is harder to detect and is not considered a violation of GAAP. Ewert and Wagenhofer (2005) show that although tightening accounting standards reduced accounting earnings management, it increased real earnings management. Moreover, Beest (2009) concludes that reducing the discretion and flexibility levels of accounting standards does not eliminate earnings management, but is likely to affect the nature of earnings management.

In recent years, there has been an increased trend of investigating real earnings management (REM), which has been concurrent with the application of more strict regulations and less flexible accounting standards. REM occurs when managers perform activities that deviate from the first best available practice or from normal business practices in order to meet certain objectives (Roychowdhury, 2006; Gunny, 2010). Examples of real earnings management include discretionary expenditure management, delaying the start of a positive NPV project, sales manipulation by reducing prices or providing more easy credit terms, early retirement of debt, overproduction to reduce the cost of goods sold, altering shipping schedules, and the selective sale of assets. The current study examines the relationship between accounting's historical cost principle and the selective sale of assets.

The measurement system most commonly adopted by enterprises to prepare their financial statements is historical cost accounting (HCA) (Elena, 2005). HCA requires that assets be reported at cost, and it assumes that the measuring unit value is stable over time. However, the measuring unit value is changeable, and HCA creates large unrealized gains or losses that may induce managers to exploit HCA via earnings management. In addition, managers are able to decide which asset to sell and during which period.

Accounting literature argues that HCA can be exploited to achieve earnings management objectives. Herrmann et al. (2003) argue that following HCA provides a better avenue for earnings management than the recognition of holding income each period under current value accounting. Barlev and Haddad (2003) find that financial reports based on HCA obscure real financial positions and provide ample room for manipulation. Ramesh et al. (2004) argue that HCA creates opportunities for earnings management. Laux and Leuz (2009) argue that since historical cost accounting does not recognize gains unless assets are sold, it may provide incentives for managers to sell assets whose value has appreciated.

Asset sale strategy is examined as a real activity that managers may use to manage earnings since assets recorded at historical cost hold large unrealized gains/losses that may induce managers to manipulate earnings using asset sales. Moreover, the sale of assets is prevalent in Egyptian business, where about 75% of firm-year observations reported non-zero income from asset sales. In addition, income from asset sales is significant enough to matter, as it represents about 29% of net income and 7% of net sales for the firms studied. Furthermore, income from asset sales contains a discretionary component where managers can determine the timing of asset sales and select assets with large unrealized capital gains in order to benefit opportunistically from the gap between historical cost and market value (Brown, 1999).

This paper contributes to accounting literature in two ways. First, it is the first study that investigates the relationship between historical cost accounting and real earnings management in Egypt. Second, the research problem is concurrent with managers' use of real earnings management, especially following the implementation of stricter financial regulations and less flexible accounting standards.

Sections of this paper provide background for earnings management, discussing how managers exploit HCA in earnings management, as well as the related literature; discuss hypothesis development, variable specification and measurement, as well as the study model; include the study sample, study period, and data collection methods; demonstrate the methods used in the data analysis and the results of using such methods; and comprise study conclusions.

LITERATURE REVIEW

Several studies discovered and examined the relationship between historical cost accounting and real earnings management. Bartov (1993) is a pioneer in this field and is considered to provide the first significant study that addresses this relationship. It finds that managers exploit HCA by interfering in the structuring of asset sale transactions to manage earnings. A negative significant correlation is found between income from asset sales and earnings change, which is consistent with the income-smoothing hypothesis. A positive significant correlation is found between income from asset sales and the debt/equity ratio, which is in line with the debt/equity hypothesis. In addition, it is found that asset sales in the fourth quarter are greater than those in other quarters, which is consistent with the timing of asset sales.

Following Bartov, Herrmann et al. (2003) proposed and examined the question of whether Japanese managers exploit HCA in earnings management using asset sales. The study results are consistent with earnings management expectations. The study shows that Japanese managers manipulate earnings through the sale of fixed assets and marketable securities to meet current and future performance expectations.

In addition, Poitras et al. (2002) examined the relationship between HCA and real earnings management in Singapore. The study finds that managers use income from the sale of assets only to manage earnings upward. Firms with a negative earnings change were found to realize more capital gains from the sale of assets, while firms with a positive earnings change were found not to use asset sales to reduce net income. In addition, results proved that managers do not use income from the sale of assets to manage the debt/equity ratio. However, these results are inconsistent with those of Bartov. Poitras et al. (2002) explained these inconsistent results by the differences in firms' characteristics and in accounting regulations between the USA and Singapore.

Hillier et al. (2005) investigated the reasons other than the sale of assets, effects of asset sales on subsequent operating performance, and market reactions to an announcement of a sale of assets. The study results assert that poor performance, high leverage, and liquidity problems are the main reasons for sales of assets. Further, a significant improvement is observed in firms' performance and is indicated by a positive one-day reaction in the share price. In addition, it is found that managers use the proceeds from the sale of assets for debt repayment. These results reveal that asset sale transactions are completed to achieve objectives consistent with those of earnings management.

Finally, Wang et al. (2010) explored the relationship between HCA and earnings management in Taiwan. The study finds that when sample firms are about to report losses, managers manipulate earnings through the sale of historical cost assets that hold capital gains in order to avoid reporting losses. Moreover, the authors find that 55-57% of sample firms with small pre-managed losses manipulate reported earnings to avoid reporting losses.

HYPOTHESIS DEVELOPMENT

A number of studies have investigated the relationship between historical cost accounting and earnings management (e.g., Bartov, 1993; Black et al., 1998; Poitras et al., 2002; Harahap, 2009) and have proposed two common hypotheses - the income-smoothing hypothesis and the debt/equity hypothesis. The main hypothesis of the current study is that Egyptian business managers exploit the shortcomings of HCA and practice real earnings management by interfering in asset sale transactions. Following the previous related studies, both the income-smoothing and debt/equity hypotheses will be examined.

Income-Smoothing Hypothesis

Bartov (1993) states that the earnings-smoothing hypothesis suggests that earnings are manipulated to reduce fluctuations around the level that is considered normal for the firm. Black et al. (1998) state that income smoothing is a specific form of earnings management that managers follow to reduce earnings volatility and keep earnings close to a certain level. Poitras et al. (2002) argue that the income-smoothing hypothesis proposes that managers manipulate earnings to achieve a smaller variable and a smoother earnings level in order to achieve certain earnings management objectives.

The accounting literature documents several incentives that motivate managers to smooth earnings. For example, income smoothing can be used to convey the level of future income that investors can expect (Hand, 1989). Further, income smoothing can remove information asymmetries between management and investors, which may reduce the cost of capital (Botosan, 1997). Graham et al. (2005) find that more than 78% of surveyed executives would trade economic value for income-smoothing. They also find that 88.70% of surveyed executives believe that income smoothing is perceived as less risky by investors; 79.70% believe that income smoothing makes it easier for analysts and investors to predict future earnings; 66.20% think that income smoothing assures investors, lenders, customers, and suppliers that business is stable; and 46.30% believe that income smoothing conveys higher future growth prospects.

Several earnings management methods enable managers to smooth income. The current study examines two methods that help managers smooth earnings: 1) to select assets to sell with unrealized capital gains, to delay an asset sale transaction that will report losses, or to accelerate an asset sale transaction that will report gains in order to manage earnings upward and 2) to select assets to sell with unrealized capital losses, to delay an asset sale transaction that will report capital gains, or to accelerate an asset sale transaction that will report capital losses in order to manage earnings downward.

It is expected that Egyptian business managers exploit historical cost accounting and interfere in the structuring of asset sale transactions in order to smooth income. Therefore, the current study proposes the income-smoothing hypothesis in a form similar to that of Bartov (1993) and Black et al. (1998), as follows:

H1: There is a negative relationship between income from asset sales and the earnings change (exclusive of asset sale effects).

Debt/Equity Hypothesis

Contracts are used widely between firms and other related parties, such as management, stakeholders, lenders, and suppliers, to specify the terms that both parties are obligated to follow. Some of these terms depend on accounting numbers in order to help monitor and regulate the contractual relations between the related parties (Healy & Wahlen, 1999). In the case that the firm violates some of these terms, some restrictions and sanctions are imposed, which may represent a strong incentive for management to meet these terms, even via earnings management.

For example, debt covenants require borrowing firms to maintain specific levels of accounting ratios, such as minimum working capital, interest coverage (net income to interest expense), and the debt-equity ratio. A violation of these ratios represents a violation of the debt contract terms, which imposes costs on the firm. These costs may involve either renegotiating the debt or restricting the investing and financing activities of the borrowing firm, such as restricting dividend payments or issuance of a new debt (Bartov, 1993). To avoid such costs, management may consider a wide range of earnings management techniques to make accounting data meet the contract terms.

In order to explore whether debt covenants represent incentives for earnings management, related research has adopted and tested the debt-equity hypothesis (e.g., Collins et al., 1980; Holthausen, 1980; Bartov, 1993; Black et al., 1998; Harahap, 2009). The debt-equity hypothesis suggests a positive relationship between the debt-equity ratio and managers' choice of earnings-increasing activities (Watts & Zimmerman, 1986; Bartov, 1993; Black et al., 1998). These earnings-increasing activities increase the denominator of the debt-equity ratio by increasing net income, which improves the debt-equity ratio to meet the required levels. It is noteworthy that the sale of assets may be an earnings-increasing activity when managers decide to sell assets that are recorded at a historical cost and hold large unrealized gains. The current study adopts the debt-equity hypothesis in a form similar to that of Bartov (1993) and Black et al. (1998) as follows:

H2: There is a positive relationship between income from asset sales and the debt/equity ratio.

VARIABLE SPECIFICATIONS AND STUDY MODEL

Dependent Variables

The proxy for earnings management should be significant enough to matter, but it must also be discretionary (Schipper, 1989). In the current study, income from asset sales (IAS) is used as a proxy for real earnings management through the sale of assets. IAS is commonly reported in Egypt, where more than 75% of the firm-year observations in the study sample report non-zero income from asset sales. IAS also constitutes a significant portion of the reported net income and net sales. In addition, IAS contains a discretionary component where managers can determine the timing of asset sales and can select assets with large unrealized capital gains to benefit opportunistically from the gap between the historical cost and the market value (Brown, 1999).

Independent Variables

The first independent variable, earnings change ($\Delta EARN_{it}$), is used as a proxy for earnings management by smoothing income since it is expected that managers manipulate earnings to achieve a smaller variable and a smoother earnings level. ΔEARN is measured as the difference between the net income of the event year (exclusive of income from asset sales) and the net income of the previous year (EARNt – EARNt-1), deflated by beginning-of-the-year total assets. The debt/equity ratio (DR_{it-1}) is the second independent variable and is used as a proxy to determine whether managers practice earnings management to avoid violating the accounting terms of debt contracts. (DR_{it-1}) is measured as the ratio of the book value of both long-term debt and the current portion of long-term debt to the book value of owners' equity at the beginning of the event year.

Control Variables

Four control variables are employed to control liquidity effects, growth effects, size effects, and the asset sale level. The current ratio is used as a proxy for liquidity effects with a negative correlation expectation. Further, change of sales, which is the difference between current sales and prior sales divided by prior sales, is used as a proxy for growth effects with an expectation of a negative correlation. Moreover, the log of total assets of the event year is used as a proxy of firms' size to control for size effects with an expectation of a positive correlation, while Lag (IAS) is used to control for the effects of the asset sale level with an expectation of a positive correlation.

Study Model

The multiple regression model is used to examine the relationship between income from asset sales and two independent variables, earnings change and the debt/equity ratio. In addition, the model contains four control variables to avoid the correlated omitted variables problem.

$$IAS_{it} = \beta0 + \beta1\ (\Delta EARN_{it}) + \beta2\ (DR_{it-1}) + \beta3\ (CR_{it-1}) + \beta4\ (\Delta\ Sales_{it}) + \beta5\ (LogA_{it}) + \beta6\ Lag\ (IASit) + \varepsilon$$

IAS_{it} = Income (either gain or loss) from sale of assets scaled by prior year total assets.
β0 = Model constant.
β1–β6 = Beta coefficients of the model's independent variables.
$\Delta EARN_{it}$ = Earnings change scaled by total assets at the beginning of the event year.
DR_{it-1} = Debt/equity ratio at the beginning of the event year.
CR_{it-1} = Current ratio at the beginning of the event year.
$\Delta\ Sales_{it}$ = Sales change of the event year.
$LogA_{it}$ = Natural logarithm of the total assets of the event year.
Lag (IASit) = Lag of the dependent variable scaled by prior year total assets.
ε = The model residual, or all other variables that influence the (IAS) variable other than those included in the model.

STUDY SAMPLE AND DATA COLLECTION

The study population includes all of the companies listed on the Egyptian Stock Exchange at the end of 2010. According to Egyptian Stock Exchange's website, there were 212 firms listed in 2010. Financial firms are excluded from the sample because they have a different nature. The study sample included the most actively traded, non-financial firms listed in all disclosure books issued by the Egyptian Stock Exchange during the financial years 2004-2010. The final sample consists of 71 firms with 469 firm-year observations.

The sample is divided into two sub-samples based on the earnings change variable: a negative sub-sample that contains observations with a negative earnings change and a positive sub-sample that comprises observations with a positive earnings change. Table 1 presents the firm-year observations of the three samples across study years.

Table 1: Firm-Year Observations of the Study Sample and Sub-Samples

	2004	2005	2006	2007	2008	2009	2010	Total
No. of study firm observations	71	71	71	71	71	71	71	497
Less: missing observations	9	7	8	4	0	0	0	28
Net firm-year observations	62	64	63	67	71	71	71	469
Negative sub-sample observations	22	14	22	13	26	38	35	170
Positive sub-sample observations	40	50	41	54	45	33	36	299
Firm-year observations with capital gains	27	31	38	44	44	52	56	292
Firm-year observations with capital losses	11	15	11	7	8	5	5	62
Non-zero income from asset sales observations	38	46	49	51	52	57	61	354
% of observations reporting capital gains	44%	48%	60%	66%	72%	73%	79%	62%

Table 1 shows that firm-year observations that report non-zero income from asset sales comprise about 75% of total observations, while firm-year observations with capital gains comprise about 82% of observations with non-zero income from asset sales, which indicates that the selling of historical cost assets is a prevalent behavior and that reporting capital gains is more common than reporting capital losses.

DATA ANALYSIS

Two statistical techniques are used in the study - the Pearson correlation test and multiple regression analysis. Descriptive statistics are shown below for the study variables, followed by the Pearson correlation test and the multiple regression analysis, which are conducted after deleting the data outliers.

Descriptive Statistics

Table 2 presents the mean, the median, and the range of the total sample for all variables across all study years.

Table 2: Descriptive Statistics of the Total Sample Variables

Year	2004 (n=62)			2005 (n=64)			2006 (n=63)			2007 (n=67)			2008 (n=71)			2009 (n=71)			2010 = (n=71)			All years (n=469)		
Variable/Statistic	Mean	Median	Range	Mean	Median	range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
1- IAS_{it}	0.03	0.00	0.01	0.43	0.00	0.26	0.21	0.00	0.09	3.61	0.01	2.18	0.56	0.01	0.14	0.35	0.01	0.11	0.59	0.03	0.12	0.83	0.01	2.19
2- $\Delta EARN_{it}$	1.85	0.82	0.28	5.58	2.18	1.06	2.38	0.75	0.76	3.93	2.11	0.50	-10.79	0.71	7.95	-1.73	-0.77	0.73	0.18	0.02	0.36	0.02	0.73	8.65
3- DR_{it-1}	0.76	0.21	7.61	0.57	0.14	7.27	0.48	0.10	7.73	0.34	0.07	7.31	0.42	0.07	7.22	0.38	0.06	6.68	0.27	0.05	4.84	0.45	0.07	9.15
4- CR_{it-1}	2.49	1.27	67.43	1.94	1.21	32.59	1.77	1.40	11.87	1.85	1.47	7.53	2.12	1.58	7.50	2.22	1.61	6.68	2.51	1.72	16.17	0.17	1.44	67.43
5- Δ $Sales_{it}$	0.30	0.25	3.92	0.69	0.15	18.26	0.31	0.11	3.12	0.18	0.09	4.30	0.57	0.18	27.20	0.66	-0.03	35.78	0.36	0.10	16.50	0.44	0.11	35.78
6- $LogA_{it}$	13.55	13.50	7.15	13.61	13.49	7.65	13.60	13.73	7.87	13.86	13.87	8.50	14.05	13.97	7.04	14.09	14.04	7.33	14.18	14.11	7.01	13.86	13.73	8.53
7- Lag(IAS_{it})	0.00	0.00	0.01	0.02	0.00	0.01	0.48	0.00	0.26	0.17	0.00	0.08	1.30	0.01	0.66	0.40	0.01	0.15	0.32	0.01	0.10	0.40	0.00	0.67

IAS = Income from asset sales (either gains of losses) for the event year scaled by At-1. *(ΔEARN)* = (Event year net income exclusive of capital gains or losses – prior year net income) scaled by At-1. *(DRit-1)* = Sum of the book value of long-term debts and the current portion of long-term debts divided by the book value of owners' equity for the beginning of the event year. *(CRit-1)* = Book value of current assets divided by the book value of current liabilities at the beginning of the event year. *(Δ Salesit)* = (Event year net sales – prior year net sales) divided by prior year net sales. *(LogAit)* = Natural log of total assets of the event year. *Lag (IASit)* = Income from asset sales (either gains or losses) of the prior period scaled by At–1 (i.e., lag of IAS).

The data presented in Table 2 provide several notable findings:

1. Most firm-year observations realized more capital gains than capital losses from asset sales transactions since all means and medians of all years are positive.
2. The debt/equity ratio does not represent an incentive for managers to manage earnings through the sale of assets since the means of income from asset sales are higher in years beginning with lower debt/equity ratios.
3. The current ratio may represent an incentive for earnings management through the sale of assets since the means of income from asset sales are higher in years beginning with lower current ratios.

4. The growth rate may represent an incentive for earnings management through the sale of assets since the highest mean of income from asset sales is matched with the lowest growth rate.
5. There is a positive correlation between firm size and income from asset sales since the lowest mean of the (IAS) variable is matched with the lowest mean of the (LogA) variable.

Table 3 provides the descriptive statistics of both the negative and positive sub-samples.

Table 3: Descriptive Statistics of the Sub-Samples' Variables

Panel A: Descriptive Statistics of Negative Sub-sample

Year	2004 (n=22)			2005 (n=14)			2006 (n=22)			2007 (n=13)			2008 (n=26)			2009 (n=38)			2010 (n=35)			All years (n=170)		
Variable/Statistic	Mean	Median	Range	Mean	Median	range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
1- (IAS_{it})	0.06	0.01	0.01	1.91	0.00	0.24	0.46	0.01	0.09	1.03	0.04	0.06	1.14	0.01	0.14	0.56	0.01	0.11	0.78	0.15	0.11	0.76	0.02	0.26
2- ($\Delta EARN_{it}$)	-2.21	-1.91	0.08	-2.33	-0.98	0.09	-5.48	-2.05	0.33	-3.32	-2.14	0.17	-37.37	-3.31	7.68	-5.86	-4.19	0.22	-2.91	-2.14	0.14	-9.07	-2.54	7.68
3- (DR_{it-1})	0.28	0.06	2.05	0.44	0.05	4.69	0.37	0.10	2.88	0.13	0.03	0.80	0.32	0.04	2.47	0.25	0.11	4.68	0.30	0.05	4.84	0.30	0.07	5.03
4- (CR_{it-1})	4.40	1.26	67.43	1.27	1.21	1.41	2.29	1.59	11.76	1.55	1.37	3.39	2.25	1.61	6.94	2.29	1.55	6.49	2.41	1.50	15.03	2.44	1.43	67.43
5- (Δ $Sales_{it}$)	0.18	0.10	2.47	0.80	0.11	8.69	0.12	0.09	1.32	0.02	0.02	0.93	0.02	0.09	1.43	0.70	-0.18	35.78	0.06	0.07	1.33	0.28	0.02	35.78
6- ($LogA_{it}$)	13.43	13.23	6.22	12.89	13.38	4.82	13.06	13.21	5.68	13.64	13.62	5.93	14.01	13.96	6.76	14.15	13.98	7.33	14.12	13.91	6.69	13.74	13.58	7.99
7- Lag(IAS_{it})	0.00	0.00	0.01	0.06	0.00	0.01	0.13	0.01	0.02	0.49	0.00	0.06	3.01	0.01	0.66	0.75	0.01	0.14	0.41	0.01	0.10	0.77	0.01	0.66

Panel B: Descriptive Statistics of Positive Sub-sample

Year	2004 (n=40)			2005 (n=50)			2006 (n=41)			2007 (n=54)			2008 (n=45)			2009 (n=33)			2010 (n=36)			All years (n=299)		
Variable/Statistic	Mean	Median	Range	Mean	Median	range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range	Mean	Median	Range
1- (IAS_{it})	0.01	0.00	0.01	0.02	0.00	0.02	0.07	0.00	0.01	4.24	0.01	2.18	0.23	0.00	0.05	0.12	0.01	0.02	0.42	0.02	0.09	0.88	0.00	2.19
2- ($\Delta EARN_{it}$)	4.09	2.74	0.19	7.80	3.30	0.97	6.60	2.46	0.42	5.68	3.37	0.34	4.58	2.03	0.27	3.02	2.32	0.15	3.18	2.09	0.23	5.19	2.51	0.97
3- (DR_{it-1})	1.02	0.32	7.61	0.61	0.20	6.61	0.53	0.09	7.03	0.39	0.08	7.31	0.48	7.10	7.22	0.54	0.04	5.67	0.24	0.03	3.61	0.54	0.08	9.15
4- (CR_{it-1})	1.44	1.28	4.26	2.13	1.22	32.59	1.50	1.34	3.84	1.93	1.52	7.44	2.04	1.56	7.46	2.13	1.71	6.69	2.61	1.89	15.63	1.96	1.44	32.59
5- (Δ $Sales_{it}$)	0.37	0.29	3.92	0.66	0.17	18.26	0.42	0.16	3.12	0.22	0.10	4.30	0.89	0.28	27.18	0.62	0.11	13.39	0.65	0.15	16.31	0.54	0.18	27.22
6- ($LogA_{it}$)	13.62	13.59	6.82	13.82	13.61	7.00	13.89	13.83	7.87	13.91	13.93	8.50	14.07	13.98	7.02	14.03	14.06	6.42	14.24	14.14	7.01	13.93	13.80	8.52
7- Lag(IAS_{it})	0.00	0.00	0.00	0.01	0.00	0.01	0.67	0.00	0.26	0.09	0.00	0.04	0.31	0.01	0.06	0.00	0.00	0.02	0.24	0.01	0.03	0.18	0.00	0.28

The descriptive statistics in Table 3 provide the following notable findings:

1. More than half of firm-year observations exhibit a positive earnings change (63.75%).
2. Firms experiencing a negative earnings change have realized more capital gains than firms exhibiting a positive earnings change since the means and medians of the (IAS) variable of the negative sub-sample are higher for most study years (6/7) than those of the positive sub-sample.
3. Firms in the positive sub-sample have higher debt/equity ratios than firms in the negative sub-sample since most means and medians of the (DR) variable of the positive sub-sample are higher than those of the negative sub-sample for most study years and for all years combined.
4. Firms in the positive sub-sample have lower liquidity ratios than firms in the negative sub-sample since the means of the (CR) variable of the negative sub-sample are higher than those of the positive sub-sample for all years combined and for four individual years.
5. Firms in the negative sub-sample have lower growth rates than firms in the positive sub-sample since all means and medians of the sales growth variable for the negative sub-sample are lower than those for the positive sub-sample for most study years.
6. Firms in the negative sub-sample are smaller in terms of total assets than those in the positive sub-sample since both the means and medians of the (LogA) of the negative sub-sample are lower than those of the positive sub-sample for all years combined and for most individual study years.

Pearson Correlation Test

The Pearson correlation test enables us to test the strength and direction of the relationship between the quantitative variables and to determine whether a multicollinearity problem exists between the independent variables.

Pearson Correlation Test of the Total Study Sample

Table 4 presents the correlations between all study variables with a two-tailed significance test for the total study sample.

Table 4: Pearson Correlation Test for the Total Study Sample

Variables	IAS	ΔEARN	DR	CR	Δ Sales	LogA	Lag (IAS)
IAS	1						
ΔEARN	-.818**	1					
DR	0.077	-0.065	1				
CR	-0.032	0.059	-0.087	1			
Δ Sales	0.038	0.048	-0.003	0.03	1		
LogA	.097*	-0.038	0.091	-0.08	0.02	1	
Lag (IAS)	.269**	-.140**	0.013	-0.014	0.008	.096*	1

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

Regarding the first study hypothesis, it is apparent that the earnings change variable is negatively correlated with the dependent variable (IAS) and it is statistically significant at 1%, which supports the income-smoothing hypothesis adopted by the current study. Regarding the second study hypothesis, the debt/equity ratio was found to have an insignificant correlation with the dependent variable (IAS), which indicates that higher levels of debt/equity ratios do not represent an incentive for managers to realize more capital gains in order to avoid violating restrictions of debts agreements. This result is consistent with the results of the descriptive statistical analysis of the total study sample. Consequently, the current study's second hypothesis is rejected.

Pearson Correlation Test of the Negative Sub-Sample

Table 5 provides the results of the Pearson correlation test for the negative sub-sample.

Table 5: Pearson Correlation Test for the Negative Sub-Sample

Variables	IAS	ΔEARN	DR	CR	Δ Sales	LogA	Lag (IAS)
IAS	1						
ΔEARN	-.762**	1					
DR	0.143	-.279**	1				
CR	-.060	0.029	-0.1	1			
Δ Sales	-0.026	0.02	-0.029	0.038	1		
LogA	-0.033	-0.074	.405**	-0.084	-0.047	1	
Lag (IAS)	.250**	-0.145	0.063	-0.021	0.032	.181*	1

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

Table 5 shows that the earnings change variable has a negative correlation with the (IAS) variable and is significant at 1%, which means that when there is a higher degree of negative earnings change, managers realize more capital gains in order to increase net income, while managers realize fewer capital gains when the negative earnings change is lower. This finding is consistent with the results of the descriptive statistical analysis. Therefore, the current study's first hypothesis is accepted. On the other hand, the (DR) variable, which is presented to test the current study's second hypothesis, has an insignificant correlation with (IAS), which means that a higher debt/equity ratio does not motivate managers in the negative sub-sample to reduce this ratio through the sale of assets. This result is consistent with the results of both the Pearson correlation test and the descriptive analysis of the total study sample; therefore, the second study hypothesis is rejected.

Pearson Correlation Test of the Positive Sub-Sample

Table 6 shows the results of the Pearson correlation test for the positive sub-sample.

Table 6: Pearson Correlation Test for the Positive Sub-Sample

Variables	IAS	ΔEARN	DR	CR	Δ Sales	LogA	Lag (IAS)
IAS	1						
ΔEARN	0.059	1					
DR	-0.015	0.03	1				
CR	-0.019	.467**	-0.104	1			
Δ Sales	.122*	.185**	0.003	0.029	1		
LogA	0.062	0.007	0.019	-0.064	0.075	1	
Lag (IAS)	0.022	0.012	0.003	-0.001	-0.032	-0.015	1

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed).

First, the earnings change variable, which is used to test the current study's first hypothesis, has no significant correlation with the (IAS) variable, which shows that for firm-year observations with a positive earnings change, managers do not manipulate earnings by income-smoothing through income from asset sales. Therefore, the current study's first hypothesis is rejected. Second, the (DR) variable, which is used to test the current study's second hypothesis, has no significant relationship with the (IAS) variable, which means that during positive earnings change years, managers do not use income from asset sales to improve the debt/equity ratio in order to avoid violation of debt covenants. Consequently, the second hypothesis is rejected.

Multiple Regression Analysis

Due to the sensitivity of the regression results to outliers, and following Abdel-Fattah (2008), who suggests running the analysis twice (with and without outliers), regression analysis is conducted twice in the current study (with and without outliers), which allows us to observe the effects of these observations on the results and to avoid any possible ethical issues. However, the results of the regression analysis with the outliers are not included. Moreover, any observation with a standardized residual greater than 4.5 is considered an extreme observation and is deleted.

Regression Analysis of the Total Sample

Table 7 shows the results for the regression analysis of the total sample. It is apparent that the regression model is significant, as the F-value is greater than the scheduled value. Further, the model regression line can be considered a good fitting line since the standard error is very low.

Table 7: Multiple Regression Outputs of the Total Sample

Panel A: Model Summary						
	R	**R-Square**	**Adjusted R2**	**Std. Error of Estimate**	**F**	**Sig.**
	0.838	0.703	0.699	0.00224	167.896	.000

Panel B: Regression Model Coefficients							
Independent Variables	**Unstd. Coefficients**		**Std. Coefficients**	**T**	**Sig**		**Collinearity Statistics**
	B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
)Constant(	-0.001	0.001		-1.359	0.175		
ΔEARN	-0.009	0.000	-.798	-29.789	0.000	0.971	1.030
DR	0.000	0.000	0.021	0.775	0.439	0.982	1.018
CR	0.000	0.000	0.021	0.784	0.433	0.984	1.016
Δ Sales	0.000	0.000	0.074	2.793	0.005	0.996	1.004
LogA	0.000	0.000	0.051	1.898	0.058	0.977	1.024
Lag (IAS)	0.018	0.003	0.152	5.659	0.000	0.972	1.029

Panel A shows that the regression model explains 70% of the variations in the (IAS) level, where R-square is .70. The earnings change variable, which is used to test the income-smoothing hypothesis, appears to have a negative, highly significant correlation with income from asset sales at 1%, which is consistent with the income-smoothing hypothesis. However, the debt/equity variable, which is included to test the debt/equity hypothesis, seems

to have a positive, insignificant relationship with income from asset sales, which is consistent with the results of both descriptive statistics analysis and the Pearson correlation test; therefore, the second hypothesis is rejected.

On the other hand, the first control variable (CR) seems to have a positive, insignificant correlation with income from asset sales, which is inconsistent with the financing hypothesis and the researchers' expectations. The second control variable (sales growth) is significantly correlated with income from asset sales at 1%, but not in the expected direction. The third control variable (size effects) is statistically significant at 10% in the expected direction, which reveals that large firms are more likely to engage in asset sales at capital gains than small firms since these firms are more likely to follow more conservative accounting methods, such as historical cost accounting. Finally, the coefficient of the Lag (IAS) control variable seems to be significant at 1% and is correlated with (IAS) in the expected direction.

Regression Analysis of the Negative Sub-Sample

Table 8 includes the results of the regression analysis of the negative sub-sample. Panel A shows that the full regression model can explain 62% of the variations in the (IAS) level and that the F-value is significant. The standard error of estimate is .005, which indicates that the regression line is a better fitting line. Moreover, Panel B shows that the earnings change has a negative, significant correlation with the dependent variable (IAS), which agrees with the results of the Pearson correlation test; therefore, the income-smoothing hypothesis is accepted. Further, the debt/equity variable is insignificantly correlated with the (IAS) variable, which indicates that higher debt/equity ratios do not put pressure on managers to manage earnings through the sale of assets, which is consistent with the results of the Pearson correlation test; therefore, the debt/equity hypothesis is rejected.

Regarding the control variables, both the current ratio and sales growth variables are insignificantly correlated with the (IAS) variable, which is consistent with the Pearson correlation test. This means that managers in the negative sub-sample do not consider liquidity levels or sales growth levels when making an asset sale decision. Further, it is apparent that there is a negative, significant correlation between firm size and income from asset sales, which is in contrast with the researchers' expectations. Finally, Panel B shows that there is a positive, significant correlation between the Lag (IAS) variable, which is used as a proxy for the asset sales level, and the (IAS) variable at 5% in the expected direction.

Table 8: Multiple Regression Outputs of the Negative Sub-Sample

Panel A: Model Summary						
	R	**R-Square**	**Adjusted R2**	**Std. Error of Estimate**	**F**	**Sig.**
	0.785	0.617	0.601	0.005	39.141	0.000
Panel B: Regression Model Coefficients						
Independent Variables	**Unstd. Coefficients**		**Std. Coefficients**	**T**	**Sig**	**Collinearity Statistics**
	B	**Std. Error**	**Beta**		**Tolerance**	**VIF**
)Constant(	0.008	0.003		2.280	0.024	
ΔEARN	-0.009	0.001	-0.755	-13.991	0.000	0.901	1.110
DR	0.000	0.001	-0.040	-0.676	0.500	0.768	1.302
CR	0.000	0.000	-0.047	-0.906	0.366	0.986	1.014
Δ Sales	0.000	0.000	-0.021	-0.402	0.688	0.994	1.006
LogA	0.000	0.000	-0.107	-1.869	0.064	0.805	1.243
Lag (IAS)	0.022	0.007	0.161	3.061	0.003	0.945	1.058

Regression Analysis of the Positive Sub-Sample

Table 9 shows the full regression model is insignificant and could not be used as a predictive or an explanatory tool for variations of income from asset sales variable since R-square is very low and F-value is not significant.

Table 9: Multiple Regression Outputs of the Positive Sub-Sample

Panel A: Model Summary						
	R	**R-Square**	**Adjusted R2**	**Std. Error of Estimate**	**F**	**Sig.**
	0.148	0.0.22	0.001	0.003	1.072	0.380
Panel B: Regression Model Coefficients						
Independent Variables	**Unstd. Coefficients**		**Std. Coefficients**	**T**	**Sig**	**Collinearity Statistics**
	B	**Std. Error**	**Beta**		**Tolerance**	**VIF**
)Constant(	0.000	0.001		-0.484	0.629	
ΔEARN	0.002	0.002	0.063	0.924	0.356	0.746	1.341
DR	0.000	0.000	-0.023	-0.398	0.691	0.981	1.019
CR	0.000	0.000	-0.050	-0.748	0.455	0.761	1.314
Δ Sales	0.000	0.000	0.109	1.818	0.070	0.955	1.047
LogA	0.000	0.000	0.051	0.873	0.384	0.989	1.011
Lag (IAS)	0.004	0.010	0.025	0.429	0.669	0.998	1.002

Unlike the results of both the total sample and the negative sub-sample, which improved significantly after removing the outliers, the regression results of the positive sub-sample became worse after deleting the outliers. It is apparent from Panel B that none of the model-independent variables are statistically significant, except for the sales growth variable which has a P-value smaller than 10%; all the other variables report P-values greater than 10%. The regression analysis of the positive sub-sample provides strong evidence that when firm-year observations report a positive earnings change, managers do not have any incentive to manage earnings, either to smooth earnings or to improve debt/equity ratios to meet contractual debt agreements. Consequently, both the income-smoothing and debt/equity hypotheses are rejected.

CONCLUSION

Accounting literature has extensively investigated the financial crises of the last decade. A number of studies have cited accounting numbers manipulation as one of the main reasons for the collapse of long-standing firms. In addition, there is strong pressure on accounting standard setters to consider the harmful effects of earnings management. Therefore, accounting standard setters have attempted to reduce the flexibility of accounting standards. However, the accounting literature has shown that managers have engaged in real earnings management, especially after the implementation of stricter financial regulations and less flexible accounting standards. Therefore, the current study has examined the potential impact of historical cost accounting on real earnings management in the emerging market of Egypt.

The results indicate that the income-smoothing hypothesis, the first hypothesis proposed by the current study, is supported by the results of the descriptive statistical analysis, the Pearson correlation test, and the multiple regression analysis for the total sample, while it is supported only by the Pearson correlation test and the regression analysis for the negative sub-sample. However, it is rejected for the positive sub-sample by all three tests. This means that when managers face a higher negative earnings change, they resort to the sale of assets at historical cost in order to increase their net income by the large unrealized capital gains. However, when managers face a higher positive earnings change, they lower their sale of assets. The results for the positive sub-sample reveal that, in general, earnings are smoothed when the earnings change is negative.

The debt/equity hypothesis, the second hypothesis proposed by the current study, is rejected by the results of the descriptive statistical analysis, the Pearson correlation test, and the multiple regression analysis for all three study samples. This indicates that when managers face a higher debt/equity ratio, they do not decide to realize higher capital gains from the sale of historical cost assets in order to reduce the debt/equity ratio. Therefore, the debt/equity hypothesis is rejected.

Moreover, the results indicate that lower liquidity levels, measured by the current ratio, do not motivate managers to increase liquidity ratios through the sale of assets for all three study samples, which is inconsistent with the financing hypothesis. Further, the results emphasize that lower growth rates do not represent incentives for

managers to manage earnings through realizing capital gains. In addition, the findings support the researchers' expectation that larger firms follow more conservative valuation methods, such as historical cost accounting, which agrees with the expectations and results of Herrmann et al. (2003).

Finally, the regression analysis of the three study samples provides strong evidence for the sensitivity of the regression results to outliers. For both the total sample and the negative sub-sample, the regression indicators improved significantly after the outliers were removed; however, those of the positive sub-sample worsened. This conclusion is in line with that of Herrmann et al. (2003) and Abdel-Fattah (2008) who argue that extreme observations harm and distort the regression results.

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