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Efficient Contracting, Earnings Smoothing and Managerial Accounting Discretion

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1. Introduction

The efficient contracting perspective of accounting choices provides evidence consistent with the idea that managers exercise accounting discretion to increase their compensation, avoid debt covenants violation, and reduce the chance of exposure to political or governmental intrusions in its business's affairs. Management may also tend to smooth the reported earnings in an attempt to meet investors' expectations of future cash flows. [1]

Accounting choices have been the subject of several studies, the majority of studies were related generally to well-developed capital markets, and in particular to the US and the UK, in which the ownership of companies is well dispersed among outside shareholders and investor protection is strong. However, relatively few studies have directly addressed the trade-offs among accounting choices in emerging countries. In this study, we extend this area of research by utilizing a unique dataset and focusing upon explaining the accounting choices for an emerging market, namely Egypt, which is characterized by highly concentrated ownership and poor investor protection.

Egypt is considered to be an ideal setting to conduct this study for several reasons. First, whilst the Egyptian privatization programme started in the second half of the 1990s, corporate ownership is still highly concentrated within families, the State, and banks. A fundamental problem related to such concentrated ownership is how information asymmetry between controlling and minority shareholders (and other users, including debt holders, customers, suppliers, and employees) is addressed. While recognizing the role of timely financial statements in channelling information, the information asymmetry problem in emerging countries is more likely resolved by closer personal channels and private communications with dominant shareholders (Ball *et al.,* 2000). This is likely lead to the

diversion (or abuse) of firm resources by controlling shareholders. For example, the existing voting rules in Egypt entitle the controlling owners to elect board members to represent their interests at the expense of minority shareholders. The majority of Egyptian board members are considered weak because they are usually chosen from family, close relatives, and friends who lack adequate financial knowledge (Sourial 2004). This is, in turn, more likely encourage resource expropriation and allow controlling shareholders to more easily manage the firm's reported earnings (e.g., Guthrie and Sokolowsky, 2010).

Second, although a considerable improvement has been made in reducing differences between the Egyptian Accounting Standards and International Financial Reporting Standards (IFRSs), there are still some concerns about weak enforcement, lack of implementation guidelines, and inadequate knowledge of IFRSs (including their Arabic translation), leading to poor-quality financial reporting in general and the inability to limit managers' scope to manage earnings (ROSC, 2009).

Finally, expected litigation cost is another fundamental variable that influences managers' disclosure decisions (Kothari *et al*., 1988). It is expected that the propensity to manage earnings is more likely to increase when ligation costs are low. In the Egyptian setting, in which civil litigation, securities lawsuits and regulatory costs are rare, managers are more likely to engage in earnings management. For example, although the Capital Market Authority (CMA) has administrative sanctioning powers, including de-listing, suspension of licences, cancelling transactions, and imposing monetary penalties, weak enforcement has been a feature of the Egyptian system (ROSC, 2009). In addition, the regulatory framework contains a significant number of overlapping and ambiguous laws, as listed firms are under the authority of several agencies with overlapping jurisdiction, which weakens law enforcement (ROSC, 2009). Consequently, such institutional characteristics are expected to allow managers to opportunistically exercise discretion over reported earnings.

Prior theoretical and empirical accounting studies have focused on the extent to which earnings are managed to achieve particular objective. [2] Despite valuable contributions provided by this stream of research in understanding the causes and consequences of managerial discretion, such empirical studies give only peripheral attention to the potential trade-offs among several competing reporting objectives that are likely to explain accounting choices. Notable exceptions are Young (1998), Darrough *et al.* (1998), Heflin *et al.* (2002), and Dey *et al.* (2008). Young (1998) finds little evidence to support the efficient contracting explanation for managerial discretion choices in the UK. Darrough *et al.* (1998) also provide support for leverage incentive only for the years after the Japanese market crash of 1990 and for the political costs hypothesis prior to the crash. They also show that Japanese managers choose income-increasing accounting accruals to increase their bonus and increase the amount of outside funding. By focusing on a sample of US listed firms, Heflin *et al.* (2002) find that managers use accounting latitude to reduce the possibility of debt covenants violation and to avoid political costs.

In an Egypt context, Dey *et al.* (2008) find evidence that is consistent with the bonus plans and debt contracts objectives. However, their study uses a single account approach, whereby earnings management is measured in specific areas of the financial statements, such as depreciation and inventory. Our study differs in a significant respect, in that we use abnormal accruals as a proxy for earnings management throughout the financial statements rather than a more limited single account approach. [3] In addition, our study is superior to that undertaken by Dey *et al*. (2008) as our sample size is also larger and more recently collected.

Our findings contribute to the existing literature in two main ways. First, as the reporting practices are closely linked to their institutional context (Ball *et al.*, 2000), generalization of findings from studies conducted in developed countries may be misleading and inappropriate

when used to explain accounting choices in emerging countries. Therefore, using a unique data set that reflects distinct legal and institutional features helps shed additional light on the role of the institutional characteristics in explaining accruals choices in an emerging economy. Furthermore, the institutional environment and incentives and payout preferences of managers and large shareholders in managing reported earnings have potentially greater influence in explaining accruals choices than other factors, such as adoption of IFRSs.

Second, unlike previous studies that are restricted to testing an individual objective, the results of this study provide greater insights into understanding the trade-offs among competing reporting objectives and determinants of accounting choice. Only focusing on a single objective at a time may lead to insufficient evidence about incentives that explain accounting choices; the same accounting choice may result in accomplishing several objectives (Fields *et al.* 2001). For example, income increasing choices that drive higher managerial compensation to benefit managers at the expense of other parties may also serve to avoid debt covenants violations, which may harm creditors and benefit other stakeholders (Fields *et al.* 2001). Similarly, results of studies that focus on a single accounting choice at a time are also limited because most managers are likely to seek to accomplish one or more reporting objectives using a single choice or a portfolio of accounting choices (Fields *et al.* 2001, Watts and Zimmerman, 1990).

Our analysis yields interesting results. We find that the traditional costly contracting incentives explain little of the variations in accounting choices (i.e., discretionary accruals) in the Egyptian context, while earnings smoothing activity explains much of the cross sectional variation in managerial choices. Specifically, managers are likely to use the accrual component in an attempt to reduce the fluctuation in reported earnings by increasing (decreasing) earnings when earnings are low (high) in attempt to reduce the variability of the reported earnings either to gain personal and/or attain the contractual objectives. [4]

The remainder of this paper is organized as follows. In Section 2, we develop our empirical hypotheses, while in Section 3 we provide the methodology. Section 4 provides description of the data and descriptive statistics. Section 5 presents our empirical findings from univariate and multivariate analysis. Section 6 introduces additional tests. Finally, Section 7 concludes.

2. Literature review and hypotheses development

2.1. Executive bonus plans hypothesis

A number of studies have reported that managers use discretionary accruals in an attempt to maximize their compensation. For example, Healy (1985) points out that compensation schemes do not always induce managers to select income-increasing accounting choices. Rather, managers are likely to choose income-decreasing accruals to save income to increase their future expected bonus when current reported earnings are beyond the bounds embedded in compensation contracts (i.e., above the upper limit or below the lower limit). However, managers may choose income-increasing accruals when the current level of reported earnings is within these bounds. In a similar vein, Holthausen *et al.* (1995) find that managers make more income-decreasing choices when their bonus is at the upper bound than when it is between the lower and upper bounds. However, they do not find the same result when bonuses are below the lower bound. Holthausen *et al.* (1995) find that discretionary accruals are more negative (i.e., income decreasing choice), when the CEO bonus is at the upper bound than when it is between the lower and upper bounds. They also find that managers manipulate earnings downwards when their bonuses are at their maximum.

Several studies document evidence supporting the view that managers manipulate earnings when their potential compensation is linked with the value of shares and options. For example, Cheng and Warfield (2005) demonstrate that the sensitivity of manager's

wealth to the short-term stock price may motivate managers with high stock-based compensations and stock equity to manage earnings. More specifically, they emphasize that those managers are more likely to report earnings that meet or beat analysts' forecasts and sell more shares in the year after earnings announcement. Bergstresser and Philippon (2006) also find a significant association between equity incentives and abnormal accruals.

To test the relation between discretionary accruals and compensation, detailed bonus plans data should be available. Due to the unavailability of detailed compensation data in the annual reports or in any other sources, in addition to the secrecy embedded in the Egyptian disclosure environment (Dahawy and Conover, 2007, Dey *et al.*, 2008), and the absence of regulation that enforces disclosure of this information, it is not expected that managers would disclose such information voluntarily. Therefore, following prior studies (Young, 1998), executive ownership is used as a proxy for the compensation objective. Executive equity ownership may reduce the underlying agency conflicts that exist either between managers and outside shareholders or between controlling shareholders and minority shareholders. According to this view, the more stocks executives own, the greater their degree of managerial control and the stronger their motivation to take actions that may lead to a lower earnings management (Warfield *et al.*, 1995). Hence, our testable hypothesis is formulated as follows:

H1. *Earnings management is negatively related to managerial equity ownership.*

2.2. Debt covenants hypothesis

Since debt agreements depend on accounting numbers reported in financial statements, managers have the opportunity to choose accounting methods that allow them to avoid violating these agreements. These contracts often include restrictive covenants that limit potential conflicts of interest between firms' debt holders and shareholders as well as restrict

managers' scope to engage in activities that may adversely affect the debt holders' wealth. These include limiting the ability of management to issue new debt and giving the debt holders the right to demand early repayment of the debt when certain accounting numbers are not maintained (Press and Weintrop, 1990, Duke and Hunt, 1990). These studies provide evidence that supports the assertion that firms with debt covenants based on accounting numbers may have greater incentives to conceal the firm's real economic performance and inflate reported earnings by, for example, engaging in income-increasing accrual choices in an attempt to reduce the possibility of default.

DeFond and Jiambalvo (1994) report that managers manipulate abnormal accruals upward to increase the reported income in the year prior to violation and, to a lesser extent, in the year of the covenant violation. Charitou *et al.* (2007) find a similar result in one year prior to bankruptcy-filing. Likewise, Sweeney (1994) finds significantly greater use of income-increasing accounting changes in defaulting firms relative to a control sample, matched on industry, size, and time period. In addition, she demonstrates that defaulting firms tend to undertake early adoption of new accounting standards when these standards increase the reported net income. In a similar vein, Healy and Palepu (1990) emphasize that firms that are close to default on their dividend restriction are likely to reduce dividends payment and switch to income-increasing accounting methods. However, DeAngelo *et al*. (1994) demonstrate that managers of financially troubled firms that reduced dividends make income-decreasing accounting decisions even though dividends payments are under pressure due to private debt agreements. Furthermore, they conclude that accounting choices reflect the firms' financial difficulties rather than attempts to avoid debt covenant violation, or inflate reported income to disguise the financial difficulties. Similar evidence is also found by Peltier-Rivest (1999) who shows that managers of troubled firms with binding debt covenants do not adopt income-increasing accounting choices.

Thus, it is expected that managers of highly leveraged firms are likely to make income-increasing accounting choices in an attempt to avoid such violation. This leads into the following hypothesis:

H2. *Earnings management is positively related to leverage.*

2.3. Political costs hypothesis

Since large firms are usually more politically visible, abnormally large increases in reported earnings may be used as an indicator of a monopoly or used as an excuse for political or governmental intrusions in their business's affairs (Watts and Zimmerman, 1990). Thus, managers of large firms are expected to have greater incentives to make accounting choices that reduce the likelihood of these political costs being incurred.

It is found that firms use income-decreasing discretionary accruals in industries applying to the United States International Trade Commission (ITC) for import relief (Jones, 1991), and in firms under investigation for anti-trust dealings during the year of the investigation (Cahan, 1992). Similar results are found in the cable television industry (Key, 1997), and in chemical firms exposed to the Superfund laws (Cahan *et al.*, 1997, Johnston and Rock, 2005).

In the oil industry, Han and Wang (1998) show that petroleum refining firms tend to make negative discretionary accruals and report good news late in an attempt to reduce political costs as early release of good news would attract additional public attention, which may increase their exposure to political actions. More recently, Byard et al. (2007) support the political costs hypothesis for a sample of US-based oil companies. Consistent with Han and Wang (1998), they find that large petroleum refining firms engage in significant abnormal income-decreasing accruals in the 4th fiscal quarter of 2005 immediately after the impact of hurricanes Katrina and Rita.

Similarly, Hall (1993) demonstrates that the increased scrutiny of oil firms are likely to motivate managers to make more income-decreasing accounting changes in periods of sharp oil price increases than in other periods. This leads to the following hypothesis:

H3. *Earnings management is negatively related to firm size.*

2.4. Earnings smoothing hypotheses

Earnings smoothing has been the subject of concern of regulatory and accounting studies alike. [5] Managers may tend to use accounting discretion afforded by accounting standards to reduce the fluctuations of earnings in an attempt to report a less variable earnings stream and also show that the company has less risk (Fudenberg and Tirole, 1995). Managers can do so by, for example, understating earnings in years of high performance in order to create reserves for future periods (Leuz *et al*., 2003). However, it is found that managers may engage in earnings smoothing even if managerial compensation is not tied with earnings (Hermann and Inoue, 1996).

It is found that managers smooth earnings in an attempy to reduce the possibility of being dismissed (Fudenberg and Tirole, 1995, DeFond and Park, 1997). Trueman and Titman (1988) provide evidence for use of earnings smoothing as a cost minimizing device. They indicate that when a firm faces a high level of earnings volatility, the possibility of bankruptcy will be greater. They argue that earnings smoothing serves to influence shareholders' perception of the stability of reported earnings and therefore their assessment of the likelihood of firm bankruptcy. Earnings smoothing is also thought of as an equilibrium solution to compensate informed managers for their information advantages and for taking additional risk (Tucker and Zarowin, 2006). Developing an analytical model to explain incentives of managers to smooth earnings, Goel and Thakor (2003) find that the degree of earnings smoothing is higher for firms whose manager's compensation contract is tied to

long-run performance, firms with higher uncertainty about the earnings volatility, and firms characterized by diffuse ownership.

Although earnings smoothing behaviour is documented in several contexts, we expect that earnings smoothing objectives may explain a larger amount of the variation in accruals choices in Egypt than efficient contracting objectives. This expectation stems from the premise that, in developed capital markets, suppliers of capital commonly contract with managers in an attempt to prevent the diversion of corporate resources to managers' personal consumption. Contractual relationships play a crucial role in aligning divergent objectives of various contracting parties, reducing information asymmetry and encouraging managers to use the reporting flexibility to improve reporting quality (Badertscher *et al.*, 2012). However, in less developed capital markets, the demand for accounting income is expected to be less clear-cut. This is because the demand for accounting income is closely related to the payout preferences of controlling shareholders rather than the demand for public disclosure (Ball *et al.*, 2000). Also, weak legal protection and lax oversight are more likely to give greater discretion over earnings and allow managers to further reduce income volatility.

More generally, Leuz *et al.* (2003) argue that reporting earnings with lower variance creates opacity, which may help insiders to expropriate from outside investors. The results of a survey conducted by Graham *et al.* (2005) show that managers believe that firms with smoother earnings are thought by investors to be less risky and associated with lower cost of equity and expected return. Therefore, managers can smooth reported earnings to accomplish several market and contracting motivations, including managerial compensation (e.g., Truman and Titman, 1988), political costs (e.g., Cahan, 1992, Godfrey and Jones, 2002), and to signal the financial stability of the firm to meet interest commitments and avoid violation of debt covenants.

Prior studies such as Leuz *et al.* (2003) and Lang *et al.* (2006) measure earnings smoothing as the ratio of standard deviation of operating income and the standard deviation of operating cash flow (both scaled by lagged total assets). Based on the preceding discussion, we test the following hypothesis:

H4.a *Earnings management is negatively related to the ratio of standard deviation of operating income and the standard deviation of operating cash flow.*

The combination of cash flows from operations and accruals constitute the level of reported earnings. Kirschenheiter and Melumad (2002) show that the level of reported earnings allows investors to infer the level of permanent future cash flows. Keeping fluctuation to a minimum level, therefore, could improve investors' expectations about this important future component. Sloan (1996) finds that investors over-estimate the persistence of accruals (i.e. as firms with relatively low (high) magnitudes of accruals, earn positive (negative) risk-adjusted returns. In response to this situation, firms facing an increase (decrease) in operating cash flows may engage in income decreasing (increasing) accrual manipulation to maintain smoothed earnings. Although accruals and cash flows are naturally negatively correlated (Dechow, 1994), larger association may suggest greater earning smoothing (Lang *et al.*, 2006, Leuz *et al.*, 2003). Accordingly, the magnitude of discretionary accruals is expected to be greater (smaller) for poor (good) cash flow firms. Accordingly, the following hypothesis is formulated:

H4.b *Earnings management is negatively related to changes in cash flows from operation.*

3. Methodology

3.1. Proxies for earnings management

We employ the cross-sectional approach of the modified Jones model suggested by Dechow *et al.* (1995), and the performance-adjusted Jones model suggested by Kothari *et al.* (2005) to isolate discretionary accruals, which are used as proxies for earnings management. This approach allows us to reduce the survivorship bias problem inherent in time-series models and to overcome the problem of unavailability of sufficient time-series data needed (at least nine years) to estimate firm-specific coefficients, as well as relax the assumption that the estimated coefficients are stationary (Kothari *et al.*, 2005). We measure discretionary accruals (*DAC*), when the modified Jones model is used, as the residuals from the following industry-year model:

$$TACC_{i,t}/TA_{i,t-1} = \alpha + \beta_1\left(\Delta REV_{i,t} - \Delta REC_{i,t}/TA_{i,t-1}\right) + \beta_2\left(GPPE_{i,t}/TA_{i,t-1}\right) + \varepsilon_{i,t} \quad (1)$$

where *TACC* is the firm *i*'s total accruals, calculated as earnings before extraordinary items and discontinued operations minus cash flow from operating activities, *TA* is firm *i*'s book value of total assets in year *t*, *Δ REV* is firm *i*'s changes in net revenues between year *t-1* and year *t*, *ΔREC* is firm *i*'s change in receivables between year *t-1* and year *t, GPPE* is firm *i*'s gross property, plant and equipment, β_1, β_2, and β_3 are the estimated parameters; ε is the error term for firm, *i* is a firm indicator, and *t* is a time indicator. The procedures of the performance-adjusted model are similar to that explained above, with the addition of the contemporaneous return on assets (*ROA*), measured as net income before extraordinary items to total assets, to Eq. (1).

Two modifications to the original models are adopted. Since there is no particular event to be examined, the first modification involves adjusting firm discretionary accruals by subtracting the changes in accounts receivable from the changes in revenues in the estimation

period as in the test period (Kasznik, 1999), as ignoring effects of receivables may reduce the power of the test (McNichols, 2000). Additionally, there is no reason to think that earnings management is expected to be only in the test period (McNichols, 2000). The second modification involves the inclusion of an intercept without scaling by lagged total assets. This is because there is no theoretical reason for forcing the regression through the origin or to believe that total accruals will be zero when changes in cash sales and gross property plant and equipment are zero.

3.2. Research design and empirical model

To test the trade-offs among multiple contracting and income smoothing objectives, we include a set of explanatory variables related to determinants of discretionary accruals choice. We model the contracting objectives as a function of bonus plans, debt covenants, and political costs. Executive ownership, *EXECOWN*, defined as the percentage of equity ownership owned by the CEO and executive directors to the total shares outstanding, is used as a proxy for the compensation objective. It is argued that leverage is positively related to both the existence of and closeness to accounting-based debt covenants and debt-to-equity ratio captures the existence and tightness of most common debt covenant restrictions (see Press and Weintrop, 1990 and Duke and Hunt, 1990, among others). We, therefore, use the ratio of total debts to net book value of equity, *DEBT/EQUITY*, as a proxy of closeness to debt covenants violation. [6]

In an attempt to test the political cost hypothesis, researchers usually focus on firm characteristics, such as firm size. However, this proxy has faced much theoretical criticism. For example, Watts and Zimmerman (1990) and Christie (1990) describe firm size as a noisy proxy for political costs that may be used as a proxy for many effects other than political cost. Moreover, while concentrating only on large firms may make the test stronger and reduce test

noise, it may weaken the power of the test as a result of testing only small samples (Hall, 1993). We use firm size is, *SIZE*, measured as the natural logarithm end-year book value of total assets of a firm, as a proxy of political costs and also to control for the correlation between size and accounting choice (Watts and Zimmerman, 1990).

Following Leuz *et al.* (2003) and Lang *et al.* (2006), we measure earnings smoothing, *SMOOTH*, as the ratio of standard deviation of operating income and the standard deviation of operating cash flow (both scaled by lagged total assets). [7] We interpret a low value of this measure as indicating that managers are more inclined to exercise accounting discretion to smooth reported earnings. An earnings smoothness proxy is calculated using rolling windows of three annual observations. Cash flow from operation is computed directly from the statement of cash flows. We also incorporate in our analysis change in cash flow from operations, *ΔCFO*, defined as cash from operating activities in the current year less cash from operating activities in the previous year, as a proxy for implicit income smoothing inherent in accrual generation. Although the association between accruals and cash flow from operation is naturally negative, a larger magnitude of this association is more likely to indicate smoothing of reported earnings to conceal the underlying corporate economic performance (Leuz *et al.*, 2003, Lang *et al.*, 2006).

The analysis also considers several other control variables. Two dummy variables are used, First, *CFOH*, defined as a dummy variable that takes the value of one when the cash flow from operations is included in the highest decile of cash flow from operations and zero otherwise. Second, *CFOL*, defined as a dummy variable that takes the value of one when the cash flow from operations is included in the lowest decile of cash flow from operations and zero otherwise. Both dummy variables are used to control for discretionary accruals measurement error, which is found to be negatively associated with cash flow performance (Dechow *et al.*, 1995, Young, 1999). In addition, two dummy variables are used to control

for abnormal reported earnings. First, *EARNH*, defined as a dummy variable that takes the value of one when the reported earnings is included in the highest decile of the reported earnings and zero otherwise. Second, *EARNL,* defined as a dummy variable that takes the value of one when the reported earnings is included in the lowest decile of the reported earnings and zero otherwise.

Additionally, the ratio of long-term assets to total assets is used as a proxy for assets intensity, *ASSINT*, to control for the possible impact of the depreciation charge on estimations of discretionary accruals (Young, 1998). Market-to-book ratio, *MTBOOK*, measured as the ratio of book value of total assets minus the book value of equity plus the market value of equity to book value of assets, is used as a proxy for growth opportunities (Krishnan, 2003). Additionally, firms that constitute the Egyptian Exchange Index 30 may have larger abnormal accruals because they possibly have the ability and resources to boost the reported earnings through using, for example, discretionary accruals. *EGX30* is a dummy variable introduced in the analyses to control for this possibility. Finally, we control for industry and time effects (not reported) using *IndustryDum* and *TimeDum* as indicator variables. The following regression is used to test the hypotheses:

$$DAC_{i,t} = \propto +\beta_1 EXECOWN_{i,t} + \beta_2 \, LEV_{i,t} + \beta_3 \, SIZE_{i,t} + \beta_4 \, \Delta CFO_{i,t} + \beta_5 \, SMOOTH_{i,t} +$$

$$\beta_6 \, ASSINT_{i,t} + \beta_7 \, CFOL_{i,t} + \beta_8 \, CFOH_{i,t} + \beta_9 \, EARNL_{i,t} + \beta_{10} \, EARNH_{i,t} +$$

$$\beta_{11} \, MTBOOK_{i,t} + \beta_{12} \, EGX30_{\,i,t} + \varepsilon_{i,t} \qquad\qquad (2)$$

where, *i* and *t* are firm and time subscripts respectively, ε is an error term, and all other variables are as defined in Table 1.

[Insert Table 1 about here]

4. Data and descriptive statistics

4.1. Data

For our empirical analysis, we use a sample of listed non-financial Egyptian firms over the period (2005 to 2007). Accounting data are obtained from the Egyptian Exchange (EGX). Data on ownership structure is collected from the Egypt for Information Dissemination (EGID) and the Capital Market Authority (CMA). The market values of equity are extracted from monthly and annually bulletins issued by EGID (various issues). Several screening criteria were applied to the data before carrying out the empirical analysis. First, for the purpose of discretionary accruals' estimations, we chose firms with no missing data over the period (2004 to 2007). [8] Second, firms should not be involved in merger or acquisition events as these firms tend to be larger for reasons other than earnings management behaviour. Thirdly, firms should not belong to the financial or regulated sectors as their disclosure requirements and accruals generation are different from those of other firms. In addition, regulation of these firms makes their accounting information incomparable to that in other industries and earnings management incentives differ from those of unregulated industries. Finally, we cleared outliers and potential data error in the dataset by excluding the values of each variable that lie outside the 1st and the 99th percentiles. This process yields a final sample of 438 observations.

4.2. Descriptive statistics

[Insert Table 2 about here]

Table 2 reports summary descriptive statistics for the main variables used in the analysis. The table indicates that the average (median) abnormal accrual as a percentage of beginning total assets is 0.0000 (-0.007) using the modified Jones model and they are qualitatively

similar when the performance-adjusted model is used. On average, the executive directors own 10.6 per cent of firm shares. In addition, the leverage ratio, on average, is 41.1 per cent.

[Insert Table 3 about here]

The Pearson correlation matrix in Table 3 shows that correlation coefficients seem reasonable. For example, larger companies are more likely to have a large ratio of debt-to-equity and their motivations to smooth earnings are higher than in small companies. Also, most of the firms that constitute EGX30 are large firms. [9]

5. Empirical results

5.1. Univariate analysis

The univariate analysis includes a mean (median) comparison test using t-test (Wilcoxon-Mann-Whitney). The samples of discretionary accruals are designed on the basis of the median of each explanatory variable in the case of scale variables or using the two categories in the case of dichotomous variables. These tests aim to show whether the mean of discretionary accruals measures differs across the two categories of each explanatory variable. For example, it is hypothesized that there is a significant difference in terms of executive directors' ownership, debt-to-equity ratio, firm size and earnings smoothing between firms in the above and below median subsamples.

[Insert Table 4 about here]

The results in Table 4 show that firms with negative cash flow changes make significantly higher discretionary accruals compared to those with positive cash flow changes. In contrast, the results do not support the managerial ownership, leverage and political costs hypotheses for any earnings management proxy. In summary, the univariate analysis provides evidence that accruals choices in Egypt are likely to be driven by income

smoothing objectives and contracting objectives explain little of the variations in abnormal accruals.

5.2. Regression results

The results of univariate analysis reveal a weak association between earnings management and all efficient contracting objectives. The univariate analysis, however, does not control for the effects of other variables that may be related to discretionary accruals or to other efficient contracting objectives, which may result in potential effects, confounding the earnings management-efficient contracting objectives relationship.

Therefore, Ordinary Least Square (OLS) regression with robust standard errors to correct for heteroskedasticity is employed to test the trade-offs between efficient contracting and earning smoothing incentives. In Table 5, we use the total discretionary accruals as measured by the modified Jones model (MJTDA) and the performance-adjusted Jones model (PATDA) as our dependent variables. We start the multivariate analysis with Model 1, in which only the control variables are included. In order to judge the marginal predictive power of explanatory variables in determining discretionary accruals choices, all independent and control variables are examined in Model 2. In addition, a vector of industry dummies *IndustryDum*, and time dummies *TimeDum* are incorporated to control for industry-fixed effects and year-fixed effects respectively.

[Insert Table 5 about here]

In general, the coefficients of most variables are in line with their predicted signs. In contrast to our expectations, the results in Table 5 reveal that the estimated coefficients of *EXWCOWN, SIZE,* and *DEBT/EQUITY* are not significant. These results provide no support for the executive bonus plans, political costs, or debt covenants hypotheses. This implies that

large firms are less likely to make income decreasing choices in an attempt to increase their compensation or to reduce the likelihood of governmental intrusions in firm affairs. This result is inconsistent with the debt covenants hypothesis, suggesting that managers of highly leveraged firms are unlikely to make income-increasing accounting choices in an attempt to prevent debt covenants violation.

However, both income smoothing variables are highly significant for both alternative discretionary accruals estimation models. More specifically, the coefficient of ΔCFO is negative and statistically significant at the 1 per cent level for both discretionary accruals proxies. This result implies that firms with positive cash flow changes are more likely to manipulate earnings downward to adversely affect the reporting earnings level in order to smooth the reporting earnings and reduce their fluctuations at minimum levels. This negative association is consistent with prior studies (for example DeFond and Jiambalvo, 1994). Similarly, the coefficient of *SMOOTH* is significantly negative at the 1 per cent level for the two earnings management proxies. Managers, therefore, are more likely to exercise accounting discretion using the accrual component in order to smooth reported earnings in an attempt to reduce the variability of earnings by altering discretionary accruals. Therefore, the results reveal that none of the contracting hypotheses are confirmed. In contrast, income smoothing hypotheses are accepted irrespective of the measure of abnormal accruals. This result ties in closely with findings in, Ball *et al.* (2000), Leuz *et al.* (2003), and Lang *et al.* (2006), suggesting that pervasiveness of earnings management is more apparent in countries with concentrated ownership, weak investor rights and legal enforcement.

The weak evidence for effects of contracting objectives in the Egyptian context may be captured by the strong effects of income smoothing. This means that income smoothing may be seen as an attempt by which managers can reduce the variability of the reported earnings either to gain personal advantage or attain some contractual objectives. Doing so is likely to

increase the likelihood of keeping their jobs (Fudenberg and Tirole, 1995), decrease the probability of political and governmental intervention as well as increase managerial compensation, which in turn can help to signal their ability to the capital market and build their reputation. Furthermore, management may tend to use income smoothing as a signal to convey private information about the firm's cash flow and future profitability.

Another possible explanation for earnings smoothing is based up the results of Goel and Thakor (2003) who demonstrate that earnings smoothing may not be determined by self-interest or leverage concerns, but it is driven by managers' efforts to increase the firm's stock price by reducing the losses shareholders may bear when they are forced to trade for liquidity reasons. Goel and Thakor (2003) argue that earnings smoothing may be desirable by uninformed shareholders who trade for liquidity reasons because any increase in the volatility of reported earnings are likely to increase their trading losses. Since investors are less likely to pay for firms with high earnings volatility, managers may respond and prohibit speculators from acquiring private information that could be used to trade against uninformed shareholders.

Collectively, the results of the regression analysis lend credence to the idea that the traditional costly contracting incentives provide little explanation for discretionary accruals choices in Egypt, while income smoothing activity explains much of the cross sectional variation in managerial choices.

6. Additional tests

6.1. Alternative discretionary accruals proxies: current discretionary accruals

It is widely believed that the scope for manipulating non-current accruals (i.e. non-working capital accruals) is relatively limited for management because they can exercise more discretion over the choice of regular revenue and expense items. Therefore, it is expected that the (current) working capital discretionary accruals component is an effective

device for managers to manipulate earnings without being easily detected (DeFond and Jiambalvo, 1994, Teoh et al., 1998 a,b). To assess whether previous results are sensitive to the measure of earnings management, the statistical procedures were repeated using only the modified Jones current discretionary accruals (MJCDA) and the performance-adjusted current discretionary accruals (PACDA) models. The current accruals were calculated as the sum of changes in inventory, accounts receivable, and other current assets less changes in accounts payable, income taxes payable and other current liabilities. The results in Table 6, show models 2 and 4, are qualitatively similar to those reported using total discretionary accruals models at a relatively higher R^2. The results again confirm the highly negative association between discretionary accruals and income smoothing hypotheses and reveal no evidence to support the bonus plans, the political costs, or the debt covenants hypotheses.

[Insert Table 6 about here]

6.2. Managerial ownership: piecewise and nonlinearity tests

Two alternative additional tests were performed to investigate the possibility of nonlinear relationship between executive ownership and discretionary accruals similar to that documented by Teshima and Shuto (2008). First, we used piecewise linear models as *EXECOWN* is decomposed as follows:

EXECOWNL = *EXECOWN* if *EXECOWN* < 5%, and = 5% if *EXECOWN* ≥ 5%;

EXECOWNM = 0 if *EXECOWN* < 5%, and = *EXECOWN*- 5% if 5% ≤ *EXECOWN* <25%;

EXECOWNH = 0 if *EXECOWN* < 25%, and = *EXECOWN* – 25% if *EXECOWN* ≥ 25%.

In unreported tests [10], the results confirm those previously documented. More specifically, the coefficient of the intermediate ownership level is negative and none of the ownership terms are significant. Second, regression models are re-estimated after including a squared term of ownership. The results also show that the coefficients of both ownership

variables are not significant for both proxies, suggesting no evidence of a nonlinear relationship between managerial ownership and discretionary accruals. Furthermore, the results do not support any of the traditional contracting hypotheses. However, both measures of earnings smoothing are negative and highly significant at the 1 per cent level.

6.3. Prior period discretionary accruals

Since discretionary accruals revert over the firm's lifetime (Dechow *et al.,* 2012, Dechow, 1994), the discretionary accruals in any period consist of the initial discretionary accrual in that period plus portions of prior periods (McNichols, 2000). However, the ability of managers to inflate the current period's reported earnings will doubtless shrink, as the level of lagged total accruals rises (Koh, 2007). Hence, the failure to control for reversal of prior years' accruals may lead to seriously invalid conclusions (Kasznik, 1999). As a result, the relation between current period discretionary accruals and lagged accruals is expected to be significantly negative. To control for the effects of accruals reversal, we include in the empirical analysis lagged total discretionary *LAGDA*.

We find that discretionary accruals are subject to short term reversal, although the results confirm previous findings concerning the income smoothing hypotheses. To examine the possibility that the results reported earlier are not driven by accruals reversal, the regressions are re-estimated after including the interactions between *LAGDA* and efficient contracting and income smoothing explanatory variables. One would observe significant coefficients on interacting variables if the accruals reversal had significant effects on the prior results. Our findings reveal that income smoothing variables remain highly significant and all coefficients of interactions are not significant. However, the debt covenant hypothesis only is confirmed at the 5 per cent level. These results provide evidence that the initial findings are robust even after taking the effects of accruals reversal into consideration.

6.4. Size effect

The results documented above provide little support for the political costs hypothesis. Sloan (1996) finds a non-linear relation between total accruals and firm size. To correct for this possibility, the statistical analysis was repeated after adding a squared term of firm size. Our analysis shows no indication of such a relationship. Another point to note is that the smoothing variables are still statistically significant at the 1 per cent level. It appears from the correlation matrix that *SIZE* is highly correlated with other explanatory variables, suggesting a need to investigate whether the earlier results will be affected exclusive of *SIZE* or using a different proxy for size; defined as the natural logarithm of sales. The findings are similar to those reported above and the results reveal no evidence of a nonlinear relationship between earnings management and firm size.

Despite the careful treatment of the variables used in the analysis and the methodology adopted, the results of this study are subject to some caveats. First, as in any accruals-based earnings management study, a key concern regarding the explanation of results relies on the ability of earnings management proxies to adequately capture earnings manipulation activities. It is well-known that measurement errors related to abnormal accruals measurement are a concern. Although alternative discretionary accruals models and different measurement error-related variables are used, the findings are still not totally free of this concern. Thus, we cannot rule out the possibility that our results are influenced by omitted variables. Second, our efficient contracting objectives and income smoothing objectives may exhibit considerable measurement error, which may bias the magnitude of the estimated effects. For instance, if leverage measures closeness to covenants violation with error, the parameter estimates using these surrogates may be biased and inconsistent. Third, corporate governance mechanisms, such as board composition, ownership audit quality, that monitor

managerial opportunism, are not included in this study. This is because the main objective of this study is to document only the trade-offs between contacting and income smoothing objectives. Thus, the effectiveness of corporate governance mechanisms in constraining opportunistic earnings management is left for other researchers to investigate.

7. Concluding remarks

This study examines whether discretionary accruals choices can be explained by the costly contracting incentives, as well as income smoothing. Accounting discretion has been modelled as a function of two competing accounting choices incentives; efficient contracting (i.e., bonus plans, debt covenants, and political costs), and income smoothing. The modified Jones and performance-adjusted Jones models are used to isolate the discretionary accruals component. Based on 438 non-financial Egyptian observations over the period (2005-2007), the results indicate that the associations between the measures of earnings management and contracting variables are not significant. Overall, the results of regression analysis lend support to the notion that the traditional costly contracting incentives provide little explanation for discretionary accruals choices in Egypt, while income smoothing activity explains much of the cross sectional variation in managerial choices.

These findings are in contrast with studies that test only one reporting objective at a time. More specifically, managers tend to reduce the fluctuations in reported earnings by increasing (decreasing) earnings when earnings are low (high) in an attempt to reduce the variability of the reported earnings. Such smoothing behaviour is likely to help managers retain their position, decrease the probability of political and governmental intervention, as well as increasing their compensation, which in turn can help to signal their ability to the capital market and build their reputation. Furthermore, management may tend to use income

smoothing as a signal to convey private information about the firm's cash flow and future profitability.

The findings of our study should be of substantial interest to regulators and policy makers. The results implicitly contribute to the ongoing arguments in relation to the optimal flexibility permitted by standard setters and the reduction in permissible accounting treatments in order to improve reporting quality and reduce opportunistic earnings management. Many of the weaknesses related to corporate reporting in emerging countries may result from the inadequate enforcement of company law as well as the weak legal protection of minority shareholders. Our results highlight the crucial role of understanding the reporting incentives, in such an environment. There is a greater need to put more emphasis on proper enforcement and protecting minority shareholders' rights, such as adopting cumulative voting to give minority shareholders the chance to elect their own representatives.

Several avenues for future research exist. Firstly, whereas the focus of the current study is restricted to the contracting and income smoothing objectives, a more comprehensive approach is needed to include and test more multiple, even conflicting, motivations especially those related to the equity market. Secondly, despite the complexities and difficulties to develop such a model, progress towards providing a comprehensive model that explains accounting choices would be valuable. Finally, there is a need to refine the discretionary accruals models and develop a generally accepted model to appropriately isolate the discretionary accruals component and/or focus on alternative measures of earnings management such as that are related to real earnings management activities.

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Table 1
Variables definitions

Variable	Definition
Discretionary accruals variables	
TACC	The total accruals calculated as earnings before extraordinary items and discontinued operations minus cash flow from operating activities.
CACC	The current accruals calculated as the sum of changes in inventory, accounts receivable, and other current assets less changes in accounts payable, income taxes payable and other current liabilities.
TA	The book value of total assets.
ΔREV	The change in net revenues between the current year and prior year
ΔREC	The change in receivables between the current year and prior year.
GPPE	The gross property, plant and equipment.
ROA	The return on total assets.
Dependent variables	
MJTDA	The signed total discretionary accruals scaled by lagged total assets as measured by the cross-sectional modified Jones model.
PATDA	The signed total discretionary accruals scaled by lagged total assets as measured by the cross-sectional performance-adjusted Jones model.
MJCDA	The signed current discretionary accruals scaled by lagged total assets as measured by the cross-sectional modified Jones model.
PACDA	The signed current discretionary accruals scaled by lagged total assets as measured by the cross-sectional performance-adjusted Jones model.
Independent variables	
EXECOWN	The percentage of equity ownership owned by CEO and executive directors to the total shares outstanding.
DET/EQUITY	The ratio of total debts debt to book value of equity.
SIZE	The natural logarithm end-year book value of total assets of firm in million (Egyptian) pounds.
ΔCFO	Change in cash from operations as measured by cash from operating activities in the current year less cash from operating activities in prior year.
SMOOTH	The ratio of standard deviation of operating income and the standard deviation of operating cash flow (both scaled by lagged total assets).
Control variables	
ASSINT	The ratio of long-term assets to total assets.
CFOL	A dummy variable that takes the value of one when the cash flow from operations is included in the lowest decile (the extreme low CFO) of cash flow from operations and zero otherwise.
CFOH	A dummy variable that takes the value of one when the cash flow from operations is included in the highest decile (the extreme high CFO) of cash flow from operations and zero otherwise.
EARNL	A dummy variable that takes the value of one when the reported earnings are included in the lowest decile (the extreme low reported earnings) of reported earnings and zero otherwise.
EARNH	A dummy variable that takes the value of one when the reported earnings are

included in the highest decile (the extreme high reported earnings) of reported earnings and zero otherwise.

MTBOOK   The ratio of book value of total assets minus the book value of equity plus the market value of equity to book value of assets

EGX30   A dummy variable that takes the value of one when the firm is one of the EGX30 companies and zero otherwise.

Table2
Descriptive statistics

Variable	Mean	Std. Dev	Q1	Median	Q3	Min	Max
TACC/lagTA	0.007	0.115	-0.050	0.001	0.062	-0.389	0.551
CACC/lagTA	-0.023	0.122	-0.081	-0.024	0.037	-0.437	0.551
Δ(REV-REC)/lagTA	0.068	0.437	-0.026	0.044	0.125	-1.076	7.896
GPPE/lagTA	0.678	0.438	0.365	0.678	0.979	0.001	3.101
lagROA	0.084	0.133	0.029	0.072	0.128	-0.569	1.808
ROA	0.092	0.110	0.033	0.087	0.143	-0.569	0.471
MJTDA	-0.000	0.105	-0.058	-0.007	0.05	-0.412	0.476
PATDA	-0.000	0.099	-0.058	-0.006	0.052	-0.395	0.434
MJCDA	-0.000	0.107	-0.060	-0.006	0.053	-0.429	0.485
PACDA	-0.000	0.102	-0.062	-0.002	0.059	-0.413	0.441
EXECOWN	0.106	0.237	0.000	0.000	0.060	0.000	1.000
DEB/EQUITY	0.411	1.262	0.000	0.131	0.520	-7.197	19.603
SIZE	12.735	1.562	11.712	12.632	13.782	9.057	17.965
ΔCFO	0.016	0.142	-0.040	0.017	0.080	-0.953	1.015
SMOOTH	0.949	0.763	0.432	0.758	1.250	-2.506	3.939

Notes: This table shows the descriptive statistics for 438 observations used in the analyses over the period 2005-2007. Definitions for all variables are provided in Table 1.

Table 3
Pearson Correlation Matrix

	EXECOWN	DEBT/QUITY	SIZE	ΔCFO	SMOOTH	ASSINT	CFOL	CFOH	EARNL	EARNH	MTBOOK	EGX30
EXECOWN	1.000											
DEBT/QUITY	0.010	1.000										
SIZE	-0.007	0.115***	1.000									
ΔCFO	0.023	-0.006	0.041	1.000								
SMOOTH	0.009	-0.059	0.044**	0.029	1.000							
ASSINT	-0.086*	-0.034	0.040	0.062	0.062	1.000						
CFOL	-0.023	-0.078	-0.131***	-0.370***	-0.024	-0.042	1.000					
CFOH	-0.101**	-0.034	0.156***	0.356***	0.116**	0.128***	-0.110**	1.000				
EARNL	0.014	0.030	-0.235***	-0.020	0.034	0.112*****	0.131***	-0.110**	1.000			
EARNH	-0.039	0.059	0.614***	0.090*	0.018	0.172***	-0.081*	0.242***	-0.108**	1.000		
MTBOOK	-0.062	-0.044	0.156***	0.001	0.023	-0.055	0.053	0.131***	-0.032	0.126***	1.000	
EGX30	-0.057	0.005	0.418***	0.029	0.009	-0.097*	-0.015	0.065	-0.106**	0.349***	0.244***	1.000

Notes: *,**and *** indicate that correlation is significant at the 10%, 5% and 1% level, respectively. Definitions for all variables are provided in Table 1.

Table 4
Univariate Analysis

	The modified Jones total discretionary accruals model				The performance-adjusted Jones total discretionary accruals model			
	MJTDA mean above variable median	*MJTDA mean below variable median*	*t-value*	*Mann-Whitney*	*MJTDA mean above variable median*	*MJTDA mean below variable median*	*t-value*	*Mann-Whitney*
EXECOWN	0.0041	-0.0036	-1.203	-1.077	0.0070	-0.0025	-0.8076	-0.645
DEBT/QUITY	-0.0039	0.0035	0.750	0.887	-0.0040	0.0035	0.7431	0.609
SIZE	0.0065	-0.0069	-1.345	-0.504	0.0068	-0.0072	-1.3712	-0.561
ΔCFO	-0.038	0.039	-10.155***	-10.030***	-0.037	0.037	-10.165***	-10.002***
SMOOTH	-0.005	0.004	-4.231***	-5.160***	-0.0071	0.0067	3.3553***	4.141***

Notes: Definitions for all variables are provided in Table 1. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Table 5
Regressions of Total Discretionary Accruals on the Contracting Incentives, Earnings Smoothing and Control Variables

	Pred. sign	MJTDA		PATDA		VIF
		Model 1	*Model 2*	*Model 3*	*Model 4*	
Constant	+/-	0.001	-0.004	0.000	-0.020	
		(0.05)	(-0.09)	(0.02)	(-0.40)	
EXECOWN	-		-0.024		-0.014	1.11
			-(1.49)		(-0.90)	
DEBT/QUITY	+		0.001		0.001	1.11
			(0.98)		(1.59)	
SIZE	-		-0.001		-0.002	2.12
			(-0.19)		(-0.52)	
ΔCFO	-		-0.353***		-0.353***	1.41
			(-9.35)		(-9.02)	
SMOOTH	-		-0.003***		-0.003***	1.06
			(-2.69)		(-2.60)	
ASSINT	+	0.001	0.001	0.002	0.002	1.38
		(0.05)	(0.06)	(0.15)	(0.15)	
CFOL	+	0.097***	0.037**	0.095***	0.036***	1.31
		(4.84)	(2.04)	(4.69)	(2.93)	
CFOH	-	-0.089***	-0.035**	-0.099***	-0.045***	1.33
		(-4.70)	(-2.29)	(-4.98)	(-2.73)	
EARNL	-	-0.114***	-0.104***	-0.109***	-0.098***	1.14
		(-6.90)	(-7.27)	(-6.31)	(-6.36)	
EARNH	+	0.037	0.033	0.033	0.025	2.03
		(1.63)	(1.33)	(1.41)	(0.98)	
MTBOOK	+	0.002	0.001	0.002	0.001	1.16
		(0.49)	(0.28)	(0.52)	(0.26)	
EGX30	+	0.017	0.024	0.019	0.024	1.52
		(1.01)	(1.39)	(1.08)	(1.34)	
Industry dummies		Included	Included	Included	Included	
Time dummies		Included	Included	Included	Included	
No of observations		438	438	438	438	
Adj. R square		0.1900	0.3629	0.1830	0.3476	

Notes: Definitions for all variables are provided in Table 1. *t* statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively. For the estimation the consistent to heteroskedasticity standard errors has been used**.**

Table 6
Regressions of Current Discretionary Accruals on the Contracting Incentives, Earnings Smoothing and Control Variables

	Pred. sign	MJCDA		PACDA	
		Model 1	*Model 2*	*Model 3*	*Model 4*
Constant	+/-	-0.005	-0.006	-0.005	-0.021
		(-0.51)	(-0.13)	(-0.48)	(-0.44)
EXECOWN	-		0.020		0.010
			(1.38)		(0.75)
DEBT/QUITY	+		0.001		0.001
			(1.21)		(1.56)
SIZE	-		0.000		0.002
			(0.07)		(0.44)
ΔCFO	-		-0.300***		-0.304***
			(-9.40)		(-9.05)
SMOOTH	-		-0.003***		-0.003***
			(-2.82)		(-2.63)
ASSINT	+	0.012	0.013	0.013	0.013
		(0.97)	(1.06)	(0.94)	(0.98)
CFOL	+	0.115***	0.065***	0.111***	0.060***
		(6.35)	(3.90)	(5.94)	(3.50)
CFOH	-	-0.112***	-0.067***	-0.119***	-0.073***
		(-6.53)	(-4.67)	(-6.58)	(-4.73)
EARNL	-	-0.074***	-0.067***	-0.072***	-0.063***
		(-4.72)	(-4.53)	(-4.30)	(-3.97)
EARNH	+	0.020	0.017	0.017	0.011
		(0.91)	(0.75)	(0.76)	(0.44)
MTBOOK	+	0.001	0.001	0.001	0.001
		(0.11)	(0.19)	(0.18)	(0.15)
EGX30	+	0.022	0.028*	0.023	0.027*
		(1.49)	(1.87)	(1.47)	(1.71)
Industry dummies		Included	Included	Included	Included
Time dummies		Included	Included	Included	Included
No of observations		438	438	438	438
Adj. *R* square		0.2339	0.3755	0.2227	0.3566

Notes: Definitions for all variables are provided in Table 1. *t* statistics in parentheses. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively. For the estimation the consistent to heteroskedasticity standard errors has been used**.**

NOTES

[1] Section 2 provides more discussion for studies related to these objectives.

[2] See Fields et al. (2001) and Dechow et al. (2010) for a survey of research.

[3] In essence, using the single account approach is problematic for three reasons (McNichols, 2000): First, the explanatory power is expected to be low as it is not clear which accrual managers use to manipulate earnings. In addition, the validity of this approach tends to be reduced when the aim is to identify the magnitude of manipulation rather than testing factors associated with a specific accrual. Thus, the feasibility of employing such an approach is questionable since an individual model is required for each accrual used to manipulate earnings. Second, the generalizability of findings of this approach might be limited due to the small number of firms for which a specific accrual is manipulated. Finally, earnings management is associated with aggregate accounting adjustments rather than the choice of specific accruals (DeAngelo, 1988).

[4] The terms *discretionary* accruals and *abnormal* accruals are used interchangeably.

[5] Earnings smoothing is a special case of earnings management involving intertemporal smoothing of reported earnings relative to economic earnings to reduce the variability of earnings over time (Goel and Thakor, 2003). It is important to note that earnings smoothing can be achieved through real activities, real smoothing, or the reporting flexibility provided by GAAP through accruals, artificial smoothing. While the former reduces volatility by directly affecting the distribution of underlying cash flows, the latter directly affects only earnings volatility. Because real smoothing has obvious costs and artificial smoothing costs are unobservable, it is less costly for management to smooth earnings through accruals (Pincus and Rajgopal 2002; Goel and Thakor 2003).Therfore, earnings smoothing in this study is related to artificial smoothing.

[5] Due to the high costs of accessing actual debt covenant information, previous accounting studies use leverage as a surrogate for the possibility of violating accounting based debt covenants. The variables commonly used in prior studies as a proxy for existence and tightness of covenant restrictions (i.e., leverage) are the debt/equity ratio, total debts to total assets, long-term debt to total assets, and total liabilities to total assets. In the presence of secrecy imbedded in the Egyptian environment and the lax oversight, obtaining such data is very difficult. In addition, with no legal obligation to disclose such data, it is not expected that managers voluntarily disclose such sensitive data.

[7] Using this proxy assumes that cash flow is free of manipulation, although real activities manipulation affects cash flows (e.g., Roychowdhury, 2006).

[8] It is worth noting that dropping firms with missing data might induce a size bias in the sample. Against this concern, the size of firms included in the final sample is compared with that of firms that have missing data. The results of t-test comparison reveal no statistical significant between the two groups of firms, which mitigate the concern of selection bias in the sample.

[9] It is evident that relatively high correlations among some explanatory variables raise econometric concern about the possible impact of collinearity on the drawn inferences. Variance Inflation Factor (VIF) scores and condition indices are calculated to ensure that

the sample did not suffer from possible harmful collinearity. Belsley *et al.* (1980) suggest that a condition index greater than 15 signifies a possible problem and in excess of 30 suggests potentially severe collinearity among the explanatory variables. Since the highest VIF score (2.12) is less than 10, multicollinearity is not a problem in this study.

[10] These results are not reported for the sake of brevity, but are available from the authors upon request.