The effect of multiple directorships on real and accrual-based earnings management: evidence from Saudi listed firms

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Abstract:

Purpose - The study examines the effect of multiple directorships on accrual-based earnings management and real earnings management. It analyses whether earnings management practices in the Saudi context increase or decrease with the average number of multiple directorships.

Design/methodology/approach – The study uses Roychowdhury (2006)'s approach to capture the level of real earnings management and employs Jones (1991)'s cross-sectional model to measure accrual-based earnings management.

Findings – The paper provides partial evidence supporting the "busyness" hypothesis where earnings management practices increase with the number of multiple directorships. The evidence shows that multiple directorships have a positive and significant effect on real earnings management in the Kingdom of Saudi Arabia. However, we find no significant impact of multiple directorships on accrual-based earnings management.

Originality/value – This is the first study that empirically investigates the relationship between multiple directorships and earnings management in the Kingdom of Saudi Arabia. The paper contributes to the limited literature on multiple directorships in developing countries by examining their impact on opportunistic real earnings management.

Keywords: Accrual-based earnings management; real earnings management; Saudi Arabia; multiple directorships; busyness hypothesis; reputation hypothesis.

1. Introduction

There is an extensive academic research that examines the importance of corporate governance in constraining accrual-based earnings management in the U.S. and other developed countries (e.g., Alves, 2014; Bédard et al. 2004; Bekiris and Doukakis, 2011; Davidson et al. 2005; Garven, 2009; Osma and Noguer, 2007; Park and Shin, 2004; Peasnell et al. 2005; Xie et al. 2003; Yang and Krishnan, 2005), as well as in developing countries (e.g., Ab Razak and Palahuddin, 2014; Banderlipe, 2009; Hasan et al. 2014; Mansor et al. 2013; Mohamad et al. 2012; Sáenz González and García-Meca 2014; Saleh et al. 2005; Siregar and Utama, 2008; Uwuigbe et al. 2014; Waweru and Riro, 2013). These studies, however, do not consider the role of multiple directorships; i.e. they ignore the fact that directors can sit on more than one board in multiple firms.

In addition, limited studies (e.g., Banderlipe, 2009; Mansor et al. 2013; Saleh et al. 2005) consider the impact of multiple directorships on accrual-based earnings management; but these studies do not consider the possibility that managers engage in real earnings management. Goh et al. (2013, p. 28) argue that "real earnings management is a more serious issue than accruals-based earnings management because the former affects a firm's fundamental performance". Moreover, Ewert and Wagenhofer (2005, p. 1115) criticize studies that ignore real earnings management and argue that these studies "may overestimate the impact of various institutional safeguards to control earnings management". This study attempts to fill the gap in the corporate governance and earnings management literature by empirically examining the impact of multiple directorships on earnings management and, more precisely, on both real and accrual-based earnings management activities.

There are two theoretical hypotheses relating multiple directorships to earnings management. The *busyness hypothesis* posits that directors holding multiple directorships will have insufficient time to monitor the firm's managers (Core et al. 1999; Fich and Shivdasani, 2006; Morck et al. 1988). From this point of view, earnings management should be positively associated with the average number of additional directorships held by board members. On the other hand, the *reputational* hypothesis argues that the number of additional directorships is an indicator of the directors' reputation and expertise in dealing with financial reporting issues (Bédard et al. 2004; Shivdasani, 1993; Yang and Krishnan, 2005). From this point of view, it is expected that earnings management will decrease when the average number of additional directorships held by the directors of the firm is higher. The net effect of multiple directorships on real earnings management and accrual-based earnings management is, therefore, an empirical issue.

One of the most important methodological issues involved in the study of multiple directorships is to measure this variable with a sufficient degree of accuracy. Prior research uses dummy variables to capture multiple directorships. For example, Banderlipe (2009) measures multiple directorships as a dummy variable equal to one if the firm has at least one independent director who holds three or more outside directorial positions and zero if otherwise. Mansor et al. (2013) use a dummy variable that takes a value of one for companies that do not have multiple directorships, and zero otherwise. Moreover, Saleh et al. (2005, p. 90) measure multiple directorships as the ratio of members on the board with multiple directorships (more than two directorships) to total members and they argue that:

"We do not use *a more precise measure* such as *the average number of directorship held by the members* because the information may not be appropriately disclosed. Thus, we have doubt about the completeness of the data."

We are motivated to examine the association between multiple directorships and the practice of earnings management in Saudi listed firms by two important reasons.

First, a survey of the existing literature on real earnings management reveals that, with the exception of few studies (e.g., Tabassum et al. 2014, Zamri et al. 2013, Zgarni et al. 2012 and Zgarni et al. 2014), the existing research is predominantly US based. In Saudi Arabia, there is limited research on this area. While there is research on accrual-based earnings management (e.g., Al-Abbas, 2009; Moghaiwli, 2010), there is no research on real earnings management in Saudi Arabia. The Saudi institutional setting provides a unique context for this research issue. The corporate governance code was issued by the Capital Market Authority in 2006 and amended in 2010 in order to regulate and develop the Saudi capital market and increase the credibility and transparency of financial reporting (Al-Matari et al., 2012). Graham et al. (2005) and Cohen et al. (2008) document that U.S. firms switch from accrual-based earnings management to real earnings management after the enactment of the Sarbanes-Oxley Act, suggesting that firms are more likely to engage in real earnings management when corporate governance is strengthened and less flexible financial reporting standards are applied. Our study is carried out after the code of corporate governance became a compulsory regulation in 2010. This environment provides incentives for the management to engage in real earnings management. Accordingly, we ask: does the effect of corporate governance mechanisms on earnings management practices, documented in previous Saudi studies, persist when considering real earnings management as the dependent variable?

Secondly, by focusing on the Kingdom of Saudi Arabia, we study a developing country paying a particular attention to the issue of multiple directorships. The corporate governance code (article 12, h) states that for a member of the Board of Directors, the maximum number of directorships is five in five Joint-Stock Companies. However, the maximum number of directorships that a director can hold in the boards of non-Joint-Stock companies is not mentioned anywhere in the Saudi laws. A study conducted in the Saudi context seems to be crucial, in order to study the ability of directors with multiple board appointments to constrain managers' opportunistic behavior effectively and to monitor earnings management activities.

In our empirical tests, we use three real earnings management measures, as developed in prior research (e.g. Roychowdhury, 2006, Cohen et al. 2008; Cohen and Zarowin, 2010; Zamri et al. 2013; Achleitner et al. 2014; Sun et al. 2014): (1) abnormal cash flows from operations, (2) abnormal discretionary expenses, and (3) abnormal production costs. In addition, following Braam et al. (2015), we construct three aggregated measures of real earnings management by combining the three aforementioned individual measures. We use the cross-sectional Jones model (1991) which has been used in other studies such as Baxter and Cotter (2009) and Roychowdhury (2006) to capture accrual-based earnings management.

The rest of the paper is organised as follows. Section 2 provides a brief overview of the Saudi code of corporate governance. Section 3 reviews the relevant literature and presents our predictions. Section 4 presents the sample selection and the empirical models. Section 5 presents the empirical results. Section 6 concludes.

2. Corporate governance in Saudi Arabia

The Kingdom of Saudi Arabia issued its own code on corporate governance in 2006, which was amended in 2010. The corporate governance code aims to ensure the protection of shareholders' rights as well as the rights of stakeholders.

Saudi Arabian companies have a unitary board system in which board members are appointed by the general assembly. The Board of Directors includes executive, non-executive and independent members. According to the code of corporate governance (article 12), the Chairman of the Board of Directors is not allowed to occupy any other executive position in the company. This means that CEO duality does not exist in Saudi Arabia. The number of board members should not be less than three (3) and more than eleven (11) as stated in article 12 of the Code (2006, p. 13): "The Articles of Association of the company shall specify the number of the Board of Directors members, provided that such number shall not be less than three and not more than eleven".

Regarding the independence of the board of directors, the Saudi Code of Corporate Governance establishes that the number of independent board members shall not be less than two members, or one-third of the members, whichever is greater. The number of non-executive directors must represent the majority of the members of the Board of Directors.

Articles 14 and 15 of the code provide detailed rules for the formation of Nomination and Remuneration Committees and Audit Committees. The establishment of these committees is mandatory for all listed companies. It is worth mentioning that there is no legal requirement for the implementation of Executives committees.

3. Literature Review

3.1. Earnings management

The accounting literature distinguishes between two types of earnings management. The first type, *accounting earnings management*, refers to "the interpretation of accounting standards and their application to transactions and events that have already occurred" as defined by Ewert and Wagenhofer (2005, p. 1104). Examples of accounting earnings management include the selection of accounting methods such as the depreciation or pricing of inventory. The second type, *real earnings management*, is defined "as departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing that certain financial reporting goals have been met in the normal course of operations" (Roychowdhury, 2006, p. 337).

Similarly to Roychowdhury (2006), Zang (2012, p. 676) states that real earnings management is "a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment, or financing transaction, and which has suboptimal business consequences". Under these definitions, real earnings management is used opportunistically by firms' managers for their own private benefits rather than for the benefits of the company's stockholders.

Prior literature documents that each type of earnings management has its associated benefits and costs. The cost of real earnings management is that it has a significant negative impact on a firm's future performance. Tabassum et al. (2014) investigate the impact of real earnings management on future financial performance. Based on a sample of manufacturing firms in Pakistan over the period of 2004 to 2011, they document evidence that firms engaged in real earnings management through through abnormal production costs face lower financial performance in subsequent years. The benefit is that real earnings management is hard to detect (Manowan and Lin, 2013). For accounting earnings management, the benefit is that it has no direct effect on cash flows. The cost is that this type of earnings management is more likely to draw auditor and regulatory scrutiny (Cohen and Zarowin, 2010; Roychowdhury, 2006). Manowan and Lin (2013, p.89) state that real earnings management is more difficult to

be detected by auditors compared to accrual-based earnings management, because the former manifests from managers' real economic actions while the latter can be detected by examining a firm's accounting policies. Chi et al. (2011) examine whether firms resort to real earnings management when their ability to manage accruals is constrained by higher quality auditors. The empirical results show that city-level auditor industry expertise, audit fees and Big N auditors are associated with higher levels of real earnings management.

3.2. Earnings management in Saudi Arabia

Saudi studies on earnings management focus on one earnings management technique in isolation and provide mixed evidence on the impact of corporate governance on accrual-based earnings management. For example, Al-Moghaiwli (2010) provides evidence of the practice of deliberate earnings management on the part of managers in Saudi Arabia. The empirical analysis is carried out using a sample of 46 companies listed on the Saudi Stock Market over the period 2005-2007, using multivariate statistical analysis. He finds that managers of large Saudi-listed companies which have high ratio of foreign employees to total employees tend to manage earnings through discretionary accruals to avoid potential political costs. Al-Abbas (2009) examines the association between corporate governance mechanisms and earnings management in the Saudi business environment, utilizing a sample of Joint-Stock companies for the period from 2005 to 2007. He measures earnings management by using current abnormal accruals. His results provide no evidence that corporate governance mechanisms mitigate earnings management. Alghamdi (2012) investigates to what extent corporate governance and external audit can affect earnings management practices. The expectation of beneficial corporate governance practices and external audit constraining opportunistic earnings management activities is, to a large extent, found to be inaccurate. No internal corporate governance variables, apart from outside director, board size and board meetings, examined in Alghamdi (2012)'s research are shown to have any significant effect on earnings management. A recent study by Habbash (2013) finds that some corporate governance attributes, namely board size and independence, are negatively and significantly associated with earnings management measured by the absolute value of discretionary accruals. His study covers a period from 2006 to 2009. It is important to note that none of these studies attempts to distinguish between real earnings management and accrual-based earnings management. This is not surprising, as real earnings management is hard to distinguish from normal business activities. According to Ewert and Wagenhofer (2005, p. 1115), "ignoring real earnings management may have an effect on the estimation of (accounting) earnings management, because most discretionary accruals models use variables whose values may be affected by real earnings management". Our study is different from the above-mentioned ones in various respects; first, these studies provide evidence of a relationship between corporate governance characteristics and accrual-based earnings management. However, whether this relationship extends to a more costly earnings management technique (i.e. real earnings management) remains a critical question that this paper seeks to address. Second, this study is more concerned with the effect of multiple directorships on real and accrual earnings management rather than the relationship between board characteristics and discretionary accruals. Finally, unlike Alghamdi (2012) and Habbash (2013), who examine a sample prior to 2010, we focus on the period following the amendment of the corporate governance regulations.

3.3. Multiple directorships and earnings management: Busyness versus Reputational Hypotheses

Fama (1980) argue that the market for managerial labor provides incentives for directors to be good monitors of the firm's management. The reward is the offer of additional directorial positions on other firms' board. Therefore, Fama and Jensen (1983) and Vafeas (1999) use the number of directorships per board member as a proxy of the reputation of a director in monitoring managers. Saleh et al. (2005) find in their empirical study that multiple directorships factor is negatively related to earnings management only in firms with negative unmanaged earnings. Yang and Krishnan (2005) find that the number of outside directorships held by audit committee directors is negatively associated with earnings management behavior. The findings of Banderlipe (2009) in the Philippines context are also supportive of a negative association between multiple directorial positions and earnings management.

However, other research does not support the negative relationship between the number of external appointments held by corporate directors and earnings management suggested above. Several studies, e.g. Morck et al. (1988), note a decreasing monitoring effectiveness of board members when they are busy with high additional directorships. In line with this argument, the Saudi code of corporate governance (2006) states that for a member of the board of directors of one firm, the maximum number of directorial positions is five in joint stock companies. Mansor et al. (2013) suggest that non-multiple directorships serve as an important corporate governance mechanism that could assist in overcoming the problem of earnings management. Sarkar et al. (2008) find that boards that have directors with multiple appointments exhibit higher earnings management. Garven (2009) and Sun et al. (2014) show that audit committees with high additional directorships are less effective in constraining real earnings management.

In addition, the empirical findings regarding the effect of multiple directorships on earnings management are mixed. The overall impact of multiple directorships on earnings management becomes an empirical issue.

4. Research methodology

4.1. Sample selection and data collection procedures

The sample used in this study covers four years from 2010 to 2013. The choice of this period is based on the fact that the Saudi corporate governance code has been amended in 2010. Detailed information on corporate governance and firm characteristics variables are collected by hand from annual report and corporate governance report. These reports are available on the Saudi Arabia stock exchange (Tadawul) website at http://www.tadawul.com.sa.
We exclude the following sectors from our analysis: (1) Banks and Financial Services and (2) Insurance because the finance industry is a highly regulated industry and the behavior of earnings in the finance sector is different from other sectors (Mohamad et al., 2012).
Consistent with Cohen and Zarowin (2010), we require at least 8 observations for each industry-year group. At the time of sampling, 121 non-financial companies are listed on Saudi Arabia stock exchange but after imposing all data requirements; the final sample consists of 95 individual firms over the period 2010-2013, including 7 industries (see Appendix).

4.2. Definition and measurement of dependent and independent variables

Dependent variables

Measures of real earnings management

Following prior studies (e.g. Roychowdhury, 2006; Cohen and Zarowin, 2010; Zgarni et al., 2012; Manowan and Lin, 2013; Zamri et al., 2013; Sun et al., 2014; Braam et al. 2015), the current study employs three metrics to study the level of real earnings management, namely the abnormal levels of cash flow from operations (RM_CFO), production costs (RM_PROD) and discretionary expenses (RM_DISX).

Consistent with Roychowdhury (2006), the study estimates the abnormal level of each method of real earnings management as the residual from the corresponding estimation model. Manowan and Lin (2013, p.88) define sales manipulation as managers' attempts to temporarily increase sales during the year through increased price discounts or more lenient credit terms. These lead to lower cash inflow over the life of the sales as long as suppliers to the firm do not offer matching discounts or lenient credit terms on firm inputs. We run the following cross-sectional regression for every industry and year in order to estimate the normal level of cash flow from operations:

$$CFO_{it} / A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it} /A_{it-1}] + \beta_3 [\Delta Sales_{it} /A_{it-1}] + \varepsilon_{it}$$

Where,

CFO_{it} Cash flow from operation of firm i in period t

A_{it-1} Total assets of firm i in year t-1

$Sales_{it}$ Sales of firm i in year t

$\Delta Sales_{it}$ Sales of firm i in year t less sales of firm i in year t-1

ε_{it} A residual term that captures the level of abnormal cash flow (RM_CFO) of firm i in year t.

For the sake of convenience and uniformity, RM_CFO is multiplied by negative one (so that the higher the value of this variable, the higher will be the value of real earnings management through sales manipulation) and called this variable RM_CFO (R).

The second type of real earnings management is the reduction of discretionary expenditures. Reduction of discretionary expenditures means that managers reduce discretionary expenditures such as advertising expenses, R&D expenses, and selling, general and administrative expenses to increase earnings (Sun et al., 2014, p. 160). We use Roychowdhury's (2006) model to estimate the normal of discretionary expenses:

$$DISEXP_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it-1} /A_{it-1}] + \varepsilon_{it}$$

Where,

$DISEXP_{it}$ The sum of Selling and Marketing Expenses and General and Administrative Expenses of firm i in year t

A_{it-1} Total assets of firm i in year t-1

$Sales_{it-1}$ Sales of firm i in year t-1

ε_{it} A residual term that captures the level of abnormal discretionary expenses (RM_DISX) of firm i in year t.

For the sake of convenience and uniformity, RM_DISX is multiplied by negative one (so that the higher the value of this variable, the higher will be the value of real earnings management through reduction of discretionary expenses) and called this variable RM_DISX (R).

Another type of real earnings management is to produce more units of goods than necessary to meet expected demand. We run the following model cross-sectional regression for every industry and year to compute abnormal production costs:

$$PROD_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it}/A_{it-1}] + \beta_3 [\Delta Sales_{it}/A_{it-1}] + \beta_4 [\Delta Sales_{it-1}/A_{it-1}] + \varepsilon_{it}$$

Where,

$PROD_{it}$ The sum of cost of goods sold and change in inventory of firm i in year t

$Sales_{it}$ Sales of firm i in year t

$\Delta Sales_{it}$ Sales of firm i in year t less sales of firm i in year t-1

$\Delta Sales_{it-1}$ Sales of firm i in year t-1 less sales of firm i in year t-2

A_{it-1} Total assets of firm i in year t-1

ε_{it} A residual term that captures the level of abnormal production costs (RM_PROD) of firm i in year t.

We use three aggregate measures of real earnings management in this study. First, consistent with Cohen and Zarowin (2010) and Braam et al. (2015), we define an aggregate measure of real earnings management, RM_CD, which is computed as the sum of the standardized variables of RM_CFO and RM_DISX multiplied by negative one. Second, consistent with Cohen and Zarowin (2010), Zang (2012) and Braam et al. (2015), we define an aggregate measure of real earnings management, RM_PD, which is computed as the sum of the standardized variable of RM_PROD and the standardized variable of RM_DISX multiplied by negative one. Third, consistent with Cohen et al. (2008) and Braam et al. (2015), we define an aggregate measure of real earnings management, RM_CPD, which is computed as the sum of the standardized variable of RM_PROD and the standardized variables of RM_CFO and RM_DISX multiplied by negative one. The higher the value of each of the three aggregate measures, the more likely the firm is engaged in real earnings management.

Measurement of accrual-based earnings management

To measure accrual-based earnings management, the following cross-sectional model was proposed by Jones (1991) and then used by Roychowdhury (2006), Zang (2012), Saleh et al. (2007) and Bédard et al. (2004),

$$TACC_{it} / A_{it-1} = \alpha_0 + \alpha_1 (1/A_{it-1}) + \beta_1 (\Delta S_{it}/A_{t-1}) + \beta_2 (PPE_{it}/A_{it-1}) + \varepsilon_{it}$$

Where,

$TACC_{it}$ is total accruals of firm i in year t. Total accruals are computed as net income minus operating cash flows;

ΔS_{it} change in net sales for firm i between year t–1 and t;

PPE_{it} gross property, plant, and equipment for firm i in year t;

ε_{it} A residual term that captures the level of accrual-based earnings management of firm i in year t.

By estimating this model for each industry for each industry-year grouping, residuals (RES_ACC) are taken as level of accrual-based earnings management.

Independent variables and control variables

Following Ferris et al. (2003), our independent variable is the number of directorships per director (NDIR), calculated as the total number of other directorships divided by the total number of directors on the board.

In our multiple regression analysis, we control for a large set of other corporate governance and firm characteristics' variables that, as suggested by prior literature, potentially affect earnings management. These control variables include board independence (Osma, 2008; Alves, 2014), the number of board meetings (Xie et al., 2003), board size (Uwuigbe et al., 2014; Kang and Kim, 2012), audit committee size and the number of audit committee meetings (Lin and Hwang, 2010). We include another control variable in the regression model that relates to the existence of an executive committee. We are aware that there is only one study by Xie et al. (2003) that examined the role of Executive committees in constraining earnings management. They argue that the Executive Committee plays an indirect role in controlling earnings management as it can dictate what is seen by the whole board of directors.

Their study reveals that the composition of the Executive committee is associated with the level of earnings management and thereby may allow a committee to better perform oversight functions.
In Saudi Arabian firms, the executive committee generally provides recommendations to the Board of Directors with regard to different subjects such as strategic and business plans. Moreover, the Board may delegate certain of its authorities and responsibilities to the Executive committee. The existence of an Executive committee should help the Board of Directors to monitor management's behavior.
We also control for the following variables identified in the existing earnings management literature (e.g. Zamri et al., 2013; Ye, 2014): return on assets, firm size and leverage.

4.3. Regression model

We test the association between the dependent variables of earnings management and the independent variables of corporate governance characteristics by estimating the following seven regression model:

$$EM_{it} = a_0 + a_1NDIR_{it} + a_2IND_{it} + a_3BSIZE_{it} + a_4NUMBBMEET_{it} + a_5ACSIZE_{it}$$
$$+ \; a_6NUMACMEET_{it} + a_7EXECCOM_{it} + a_8SIZE_{it} + a_9ROA_{it} + a_{10}LEV_{it}$$
$$+ \varepsilon_{it}$$

Where:

a_0: intercept;

$a_1 - a_{10}$: coefficients of slope parameters;

Dependent variables:

EM: RM_CFO (R), RM_DISX (R), RM_PROD, RES_ACC, RM_CD, RM_PD, RM_CPD (all the variables are as previously defined and this model is separately tested);

Independent variables:

NDIR: The total number of other directorships divided by the total number of directors on the board;

Control variables:

BSIZE: The number of directors in the board;

NUMBBMEET: The number of board meetings held annually by the board of directors;

IND: The ratio between the number of independent directors and the total number of board members;

EXECCOM: A dummy variable that takes the value of one if an executive committee exists; and zero otherwise;

SIZE: The natural logarithm of total assets at year-end;

ROA: Net income divided by lagged total assets;

LEV: Total long-term debt divided by total assets.

5. Empirical results

5.1. Descriptive analysis and correlations

Table (1) shows the descriptive statistics for the variables used in this paper. Table (1) shows that each director held an average of one board seat on other listed companies. The maximum number of directorships on other boards is four seats. These results show that that the Saudi firms met the requirement made by the corporate governance code on the maximum on the maximum number of multiple directorships, which are five directorships on joint stock companies. The number of directors on the board is made of an average of eight directors. Independent non-executive directors account for more than a third (48%) of the total number of directors. Also, having an approximate mean value of about 57% for EXECCOM basically reveals that the majority of the Saudi firms have an executive committee.

An examination of the correlation matrix, shown in table (2) indicates that all correlation coefficients are less than 0.80, suggesting that multicollinearity does not constitute a major concern (Gujarati, 2003). Table (2) shows that there are some significant correlations among independent and control variables. The highest correlation is between SIZE and LEV is 0.621 ($p<0.01$), suggesting that larger firms have higher debt levels. The correlation between SIZE and NDIR is also significant (with correlation coefficient 0.225), suggesting that larger firms have more directors with high number of multiple directorships.

5.2. Estimation models

Table (3) reports the regression coefficients for the regression models used to estimate normal levels of cash flow from operations, discretionary expenses and production costs. The table reports the mean coefficients across industry-years and t-statistics from standard errors across industry-years. The explanatory power of the models is quite high. The average adjusted R^2 across industry-year is 89% for production costs and 50% for cash flows from operations. The mean adjusted R-square across industry-years is 33% for the model to predict normal level of accruals.

5.3. Main regression results

Table (4) displays the results of the regression equation models which were run using four OLS regression models which were employed using three individual proxies of real earnings management (RM_CFO (R), RM_DISX (R), and RM_PROD), and abnormal discretionary accruals, the measure of accrual-based earnings management as dependent variables.

We find a significant positive coefficient of 0.031 (t=3.29) on NDIR in the RM_CFO (R) regression, suggesting that multiple directorships are associated with more real earnings management through sales manipulation. Consistent with the RM_CFO (R) results, we find a positive coefficient of 0.024 (t=2.57) on NDIR in the RM_PROD regression. This result implies that there is a significant positive relationship between multiple directorships and real earnings management through overproduction for the sampled firms in Saudi Arabia. That is, the higher the number of directorial positions a board member has, the greater the level of real earnings management.

Although the coefficients on NDIR in the RM_ DISX (R) and RES_ACC are insignificant at conventional significance levels, their signs are consistent with the busyness hypothesis's predictions.

Table (5) presents the estimation results using three different aggregate measures of real earnings management as dependent variables. Recall that a higher value of each of these aggregate measures implies more real earnings management. Since the results for the three models are quite analogous, we discuss them simultaneously. In the three models, the coefficient on the number of directorships per director is positive and significant at least at the 10% level.

Collectively, these results suggest that when directors are busy with multiple directorships, they are less likely to monitor managers and to limit their earnings management behavior. These results are consistent with the findings of Mansor et al. (2013), Sarkar et al. (2008), and Garven (2009) who opine that busy directors are less effective monitors and therefore provide managers with incentives to engage in earnings management. This outcome, however, contradicts Saleh et al. (2005), Yang and Krishnan (2005), and Banderlipe (2009) who argue that directors with multiple board seats tend to be effective monitors of management, and therefore will limit earnings management practices.

As to the control variables, the coefficient on audit committee meetings is significantly negative in three specifications (see table 4, column 3, and table 5, columns 2 and 3). This suggests that audit committees that meet frequently are associated with more effective monitoring of management and are more likely to limit earnings management. This is consistent with the findings of Xie et al. (2003). The results in Tables 4-5 suggest that in most cases we find support for a negative and significant relationship between earnings management and return on assets. Thus, more profitable firms are less engaged in earnings management, which confirms the results of Bédard et al. (2004) and Habbash (2013). Finally, no relationship is found between the voluntary establishment of an executive committee and earnings management proxies.

6. Conclusion

The objective of our study is to examine the impact of multiple directorships held by board members on earnings management measured by discretionary accruals and real earnings management. We find that real earnings management is more likely to occur in companies

whose boards include more directors with multiple board appointments. Our findings largely support calls for limits on the number of directorships held by board members. Our study suggests that the number of external appointments held by corporate directors is an important variable that has been largely overlooked by prior corporate governance and earnings management literature.

Our findings are of value to Saudi Arabia regulatory agencies such as the Capital Market Authority (CMA) who seek to improve board effectiveness in listed companies. The CMA should consider revising the maximum number of additional directorships to protect shareholders' interests from opportunistic earnings management behavior. The findings of this study also imply that shareholders should consider the number of multiple directorships of board members before they appoint them.

Like other studies, this study has some limitations. First, we focus on real earnings management through operational decisions. Future research, however, could consider other less common methods of real earnings management, such the sale of fixed assets. Second, the sample period covers only four (4) years data from the Saudi stock exchange market.

Future research could examine other corporate governance characteristics which may impact real earnings management. Further research could concentrate on the effect of independent directors' cash compensation on real earnings management. Future research can use other proxies for multiple directorships such as the number of outside directorships per outside director (Jiraporn et al., 2008). It also would be valuable to determine the optimum number of multiple directorships that can limit accrual-based earnings management and real earnings management.

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Appendix: Sample Distribution Across Industries

No.	Industry	N
1	Petrochemical indutries	14
2	Cement	12
3	Retail	14
4	Agriculture and food indutries	16
5	Industrial investment	14
6	Building and construction	17
7	Real estate development	8

Table 1: Descriptive statistics for independent and control variables

	Mean	SD	Min	Max
NDIR	1.329	0.898	0	4.545
IND	0.487	0.175	0	1
BSIZE	8.157	1.465	4	11
NUMBBMEET	5.284	2.290	0	19
ACSIZE	3.303	0.531	3	5
NUMBACMEET	5.206	2.267	1	21
EXECCOM	0.576	0.495	0	1
SIZE	7.596	1.515	3.682	12.733
ROA	0.087	0.104	-0.421	0.490
LEV	0.122	0.156	0	0.669

Table 2: Correlation matrix among independent and control variables

	NDIR	IND	BSIZE	NUMBBMEET	ACSIZE	NUMACMEET	SIZE	ROA	LEV
NDIR	1								
IND	-0.136	1							
BSIZE	0.190*	-0.199*	1						
NUMBBMEET	-0.108	-0.049	-0.082	1					
ACSIZE	0.002	-0.074	0.368*	0.070	1				
NUMACMEET	0.026	0.017	-0.054	0.243*	0.067	1			
SIZE	0.225*	-0.310*	0.462*	0.016	0.395*	0.010	1		
ROA	0.088	-0.195*	0.149	-0.103	-0.035	-0.084	-0.025	1	
LEV	0.111	-0.146	0.179*	-0.129	0.204*	-0.058	0.621*	-0.262*	1

Significance at the 1% level.

Table 3: Model parameters

	CFO$_t$/A$_{t-1}$	DISEXP$_t$/A$_{t-1}$	PROD $_t$/A$_{t-1}$	TACC
1/A$_{t-1}$	27.387	-1.698	3.263	-11.193
	(2.04)*	(0.57)	(0.25)	(1.00)
S$_t$/A$_{t-1}$	0.257		0.766	
	(3.85)***		(11.51)***	
ΔS$_t$/ A$_{t-1}$	-0.020		-0.356	0.065
	(0.20)		(2.81)**	(0.71)
S$_{t-1}$/A$_{t-1}$		0.048		
		(4.13)***		
ΔS$_{t-1}$/ A$_{t-1}$			-0.199	
			(2.09)*	
PPE$_t$/A$_{t-1}$				-0.025
				(0.79)
_cons	-0.025	0.033	-0.049	0.005
	(0.69)	(6.96)***	(1.85)*	(0.16)
R^2	0.50	0.27	0.89	0.33
N	284	284	189	284

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

This table reports the estimated parameters in the following regressions:

$$CFO_{it} / A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it} /A_{it-1}] + \beta_3 [\Delta Sales_{it} /A_{it-1}] + \varepsilon_{it}$$

$$DISEXP_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it-1} /A_{it-1}] + \varepsilon_{it}$$

$$PROD_{it}/A_{it-1} = \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it} /A_{it-1}] + \beta_3 [\Delta Sales_{it} /A_{it-1}] + \beta_4 [\Delta Sales_{it-1} /A_{it-1}] + \varepsilon_{it}$$

$$TACC_{it} / A_{it-1} = \alpha_0 + \alpha_1 (1/A_{it-1}) + \beta_1 (\Delta S_{it} /A_{t-1}) + \beta_2 (PPE_{it}/A_{it-1}) + \varepsilon_{it}$$

Table 4: Regression results (using accrual-based earnings management and individual measures of real earnings management as dependent variables)

	RM_CFO (R)	RM_DISX (R)	RM_PROD	RES_ACC
NDIR	0.031	0.005	0.024	0.007
	(3.29)***	(1.31)	(2.57)**	(0.71)
IND	-0.048	0.018	0.057	-0.047
	(0.95)	(0.92)	(1.14)	(0.93)
BSIZE	0.009	-0.003	-0.000	-0.002
	(1.34)	(1.26)	(0.00)	(0.24)
NUMBBMEET	0.006	0.001	0.007	0.005
	(1.49)	(0.51)	(1.80)*	(1.25)
ACSIZE	-0.013	-0.001	0.002	-0.020
	(0.75)	(0.20)	(0.10)	(1.19)
NUMACMEET	-0.004	-0.001	-0.007	-0.003
	(1.00)	(1.03)	(1.71)*	(0.67)
EXECCOM	-0.013	0.002	-0.004	0.027
	(0.78)	(0.31)	(0.24)	(1.59)
SIZE	-0.006	0.000	-0.004	-0.000
	(0.72)	(0.01)	(0.44)	(0.03)
ROA	-0.453	0.085	-0.175	-0.007
	(4.87)***	(2.38)**	(1.87)*	(0.08)
LEV	0.006	0.030	0.055	0.026
	(0.08)	(1.04)	(0.75)	(0.35)
_cons	0.036	0.006	-0.025	0.065
	(0.47)	(0.22)	(0.33)	(0.86)
R^2	0.15	0.04	0.09	0.03
N	253	253	177	253

Significance at the 10% level.

*** Significance at the 5% level.*

*** Significance at the 1% level.*

This table reports the estimated parameters in the following regressions:

$$\text{RM\_CFO (R)}_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+ \ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

$$\text{RM\_DISX (R)}_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+ \ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

$$\text{RM\_PROD}_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+ \ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

$$\text{RES\_ACC}_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+ \ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

Table 5: Regression results (using aggregate measures of real earnings management as dependent variables)

	RM_CD	RM_PD	RM_CPD
NDIR	0.337	0.247	0.338
	(3.27)***	(1.78)*	(2.20)**
IND	-0.004	0.895	0.779
	(0.01)	(1.18)	(0.93)
BSIZE	0.002	-0.057	0.016
	(0.03)	(0.58)	(0.15)
NUMBBMEET	0.060	0.112	0.133
	(1.42)	(1.90)*	(2.04)**
ACSIZE	-0.126	-0.086	-0.124
	(0.68)	(0.35)	(0.45)
NUMACMEET	-0.060	-0.123	-0.141
	(1.45)	(1.95)*	(2.03)**
EXECCOM	-0.061	-0.025	-0.109
	(0.33)	(0.10)	(0.40)
SIZE	-0.047	-0.021	-0.083
	(0.50)	(0.16)	(0.58)
ROA	-1.759	0.454	-2.052
	(1.70)*	(0.32)	(1.32)
LEV	0.664	1.286	1.713
	(0.81)	(1.15)	(1.39)
_cons	0.413	0.022	0.164
	(0.49)	(0.02)	(0.13)
R^2	0.07	0.06	0.09
N	253	177	177

* Significance at the 10% level.

** Significance at the 5% level.

*** Significance at the 1% level.

This table reports the estimated parameters in the following regressions:

$$RM\_CD_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+\ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

$$RM\_PD_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+\ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$

$$RM\_CPD_{it} = a_0 + a_1 NDIR_{it} + a_2 IND_{it} + a_3 BSIZE_{it} + a_4 NUMBBMEET_{it} + a_5 ACSIZE_{it}$$
$$+\ a_6 NUMACMEET_{it} + a_7 EXECCOM_{it} + a_8 SIZE_{it} + a_9 ROA_{it} + a_{10} LEV_{it} + \varepsilon it$$