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# **Abnormal Real Activities, Meeting Earnings Targets and Firms' Future Operating Performance: Evidence from an Emerging Economy**

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# **Abnormal Real Activities, Meeting Earnings Targets and Firms' Future Operating Performance: Evidence from an Emerging Economy**

## **Abstract**

**Purpose** – This paper aims to examine the extent to which Real Earnings Management (REM) is used in Jordan to meet zero or previous year's earnings and how this impacts the subsequent operating performance of Jordanian firms.

**Design/methodology/approach** – The study used a sample of 98 Jordanian listed firms over the 2010-2018 period. To test our research hypotheses, which are formulated in accordance with both agency theory and signalling theory, multivariate regression is performed using a pooled OLS estimation. Additionally, a two-step dynamic Generalised Method of Moment (GMM) model has been estimated to address any concerns regarding the potential occurrence of endogeneity issues.

**Findings** – Our results show that Jordanian firms that meet zero or last year's earnings tend to exhibit evidence of real activities manipulations. More specifically, suspect firms show unusually low abnormal discretionary expenses and unusually high abnormal production costs. Further, consistent with the signalling earnings management argument, we find that abnormal real-based activities intended to meet zero earnings or previous year's earnings potentially improve the subsequent operating performance of Jordanian firms. This implies that REM is not totally opportunistic, but it can be used to enhance the subsequent operating performance of Jordanian firms. Our findings are robust to alternative proxies and endogeneity concerns.

**Practical implications** – Our findings have several implications for policymakers, regulators, audit professionals, and investors in their attempts to constrain REM practices to enhance financial reporting quality in Jordan. Managing earnings by reducing discretionary expenses appeared to be the most convenient way to manipulate earnings in Jordan. It provides flexibility in terms of time and the amount of spending. Our empirical evidence, therefore, reiterates the crucial necessity to refocus the efforts of internal and external auditors on limiting this type of manipulation to reduce the occurrence of REM activities and enhance the subsequent operating performance of listed firms in Jordan. Drawing on Al-Haddad & Whittington (2019), our evidence also urges regulators and standards setters to develop a more effective enforcement mechanism for corporate governance provisions in Jordan to minimise the likelihood of REM incidence.

**Originality/value** – This study contributes to the body of accounting literature by providing the first empirical evidence in the Middle East region overall on the use of REM to meet zero or previous year earnings by Jordanian firms. Moreover, our study is the first to empirically examine the relationship between REM and Jordanian firms' future operating performance.

**Keywords**- Accrual earnings management, Earnings Targets, Future operating performance, Jordan,

**Paper type**- Research paper.

## 1. Introduction

Missing an earnings benchmark or reporting volatile earnings degrades the predictability of reported earnings, which, in turn, decreases the stock price because uncertainty is unfavored by analysts and investors (Graham et al., 2005). In contrast, meeting earnings benchmarks can improve the firms' reputation and enhance its credibility with its stakeholders, including suppliers, creditors, and customers (Burgstahler and Dichev, 1997). Crucially, meeting earnings benchmarks brings several benefits to the firm, such as maximising the stock price, avoiding litigation, and increasing the credibility of management for meeting stakeholders' expectations (Bartov et al., 2002; Graham et al., 2005). Further, it helps to convey the future growth prospects of the firm (Graham et al., 2005). Previous literature shows that managers have two main options to manage reported earnings. Firstly, they can use their judgments in financial reporting to alter the level of accruals and obtain the desired level of earnings; this is known as "Accruals Earnings Management (AEM)" (Healy and Wahlen, 1999). Secondly, they can adjust the timing or structuring of particular transactions, investments, and allocation of company resources to improve reported earnings in the current period (Dechow and Skinner, 2000; Roychowdhury, 2006). This deviation from normal business practices to manipulate reported earnings is defined as "Real Earnings Management (REM)" and is the focus of this study. The results of the Graham et al. (2005) survey have attracted the attention of academic researchers to managers' tendency to use real earnings manipulations and triggered numerous recent studies investigating this type of manipulation. In particular, they indicate that about 80% of managers show their willingness to sacrifice firm economic value (e.g. decrease the discretionary expenses on research and development (R&D) or advertising expenses) to manipulate accounting earnings. Additionally, they suggest that more than half (55.3%) of managers prefer to postpone a new investment to meet or beat a previous earnings target.

According to Gunny (2010), a manager could decide to engage in REM to meet a benchmark or not to engage in REM and miss the opportunity to meet this benchmark. Consistent with the signalling explanation, managers who have confidence that the future performance will be better will use the joint signal because they expect the future growth of earnings can offset the harmful impact of REM and meet the benchmark. However, suppose they expect a relatively worse future performance. In that case, they will not use the joint signal because when the company faces an impact on earnings resulting from the costs of REM and the cost of setting earnings expectations higher by meeting the target in the previous period, investors will be disappointed. These earnings disappointments may damage management credibility and increase the possibility of litigation (Gunny, 2010). Recent empirical literature states that there has been something of a switch from accrual-based to real activities earnings management ( e.g. Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012; Kothari et al., 2012; Kuo et al., 2014; Franz et al., 2014; Zhu et al., 2015; Enomoto et al., 2015; Ferentinou and Anagnostopoulou, 2016, among others). This switch is due to two possible reasons: first, depending on

accrual manipulation alone involves a risk; according to Roychowdhury (2006) and Cohen and Zarowin (2010), the realised gap between unmanaged earnings and the desired earnings benchmark can exceed the amount by which it is possible to adjust accruals after the end of the fiscal period. If the reported income falls below the desired benchmark and all accrual-based strategies to meet this benchmark have already been exhausted, managers will end up with no choice except to switch to REM because real activities cannot be changed at or after the end of the fiscal reporting period. Second, managing accruals is more likely to draw auditor or regulators attention than real decisions about pricing and production; thus, managers may find it safer to manipulate real activities than discretionary accruals (Graham et al., 2005). Drawing on Roychowdhury (2006) and Gunny (2010), we are motivated to conduct the current study that adds to the ongoing debate about the impact of real earnings management on future operating performance in emerging economies.

Most of the previous research on the consequences of real earnings manipulations has been conducted in developed economies such as the US and the UK (e.g. Roychowdhury, 2006; Gunny, 2010; Cohen and Zarowin, 2010; Zhao et al., 2012; Leggett et al., 2016; Al-Shattarat et al., 2018; among others). In contrast, fewer studies have examined this association in emerging economies settings (e.g., Tabassum et al., 2015; Gill et al., 2013; Yasser & Soliman, 2018). To the best of our knowledge, there is no existing study examining the impact of REM intended to achieve certain targets on future operating performance in the context of Jordan, specifically, and the Middle East and North Africa (MENA) region in general. Specifically, most of the previous literature conducted in Jordan (e.g. Abbadi et al., 2016; Alzoubi, 2016; Alzoubi, 2018; Idris et al., 2018) focused primarily on accrual earnings management. Although other recent studies (e.g. Al-Haddad and Whittington, 2019; Al-Haddad et al., 2019; Alhadab et al., 2020) have investigated real earnings manipulations in Jordan, none of them has investigated the association between real earnings manipulation and future operating performance. This study, therefore, allows for a broader and more comprehensive understanding of the possible impact of REM on the future operating performance in Jordan.

Our study interestingly sheds light on Jordan as a part of the MENA region. The ownership structure is highly concentrated in the hands of large shareholders, and the degree of investor protection is considered weak (Al-Haddad and Whittington, 2019). For example, Jordan's major conflict of interests does not appear to be the one between managers and shareholders (i.e., the traditional agency conflict in developed economies) (Al-Haddad et al., 2019). Contrarily, the main agency concern seems to be between controlling shareholders, such as large block holders or companies, and powerless minority shareholders (Becht & Röell, 1999). Given this, we have been further motivated to explore the extent to which REM activities can influence future operating performance in Jordan.

Jordan is a developing country with sufficient data for us to seek to analyze. Thus, it can give a window to gain insights not just for Jordan but also for the many developing economies with even

less information. The Jordanian capital market has a distinctive advantage of having more than half of its market capitalisation comprised of foreign ownership. More specifically, by the end of 2019, non-Jordanian ownership in listed companies formed approximately 50.2% of the total market capitalization of the Amman Stock Exchange (ASE Annual Report, 2019). Drawing on Gunny and Zhang (2014), we argue that when foreign owners are perceived as controlling shareholders, they may push Jordanian companies towards more engagement in earnings manipulations to ensure that positive financial results are achieved in the future. Crucially, we believe that abnormal real activities intended to meet earnings benchmarks to satisfy the needs of influential stakeholders, e.g., foreign shareholders, allowing for better future operating performance (Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018).

Given the importance of future performance to the firm, its shareholders, and regulators, and given the scarcity of studies on the consequences of REM in the Middle East region, in general, and in Jordan, in particular, it is clear that investigating the implications of REM on subsequent operating performance is essential. Further, the continuing controversy on whether real earnings management, intended to meet specific earnings benchmarks, improves or worsens the future operating performance provides a strong impetus to contribute to the existing inconclusive international literature and extend evidence to an emerging country such as Jordan, bearing in mind that this issue has never been investigated before in Jordan or in the MENA region overall to the best of our knowledge.

Based on a sample of 98 Jordanian public firms, our results demonstrate that suspect firms show unusually low abnormal discretionary expenses and unusually high abnormal production costs. Further, consistent with the signalling earnings management argument, we find that abnormal real-based activities intended to meet zero earnings or previous year's earnings to improve the Jordanian firm's subsequent operating performance. The findings of this study contribute to the body of earnings management literature by providing a more complete picture of how the three types of REM are associated with Jordanian firms' future cash flow generating ability. More precisely, this study is the first to provide empirical evidence on the presence of real earnings management to meet earnings benchmarks in an emerging economy like Jordan; also, it is the first to document a positive relationship between meeting these benchmarks using REM and the subsequent operating performance of Jordanian firms. Our findings are robust to alternative measures and endogeneity concerns.

Our study contributes to the body of existing knowledge as follows. We first investigate whether there is an association between real earnings manipulations and meeting earnings benchmarks, namely, zero or last year earnings, as they are the most common earnings targets adopted by firms' management (Roychowdhury, 2006; Gunny, 2010; Zhao et al., 2012; Francis et al., 2016; Al-Shattarat et al., 2018; Jiang et al., 2018). By doing so, our empirical evidence can raise auditors' attention to devote their efforts to limit the discretionary expenses-based manipulations in order to reduce real earnings management and their negative impact on firms' future performance. Second, we examine

whether the association between real earnings manipulation and future operating performance that has been documented in the US and the UK also holds for firms operating in emerging economies such as Jordan. In doing so, our study provides important implications for regulators and standards setters to develop more effective enforcement mechanisms for corporate governance implementations along with enhancing the quality of external audit process in an attempt to constrain earnings management practices, leading to improving the financial reporting quality and future performance of listed companies in Jordan. Also, our study contributes to the extant literature by bringing up insights about the earnings manipulations-meeting earnings benchmarks-future operating performance nexuses from an emerging economy, allowing for comparisons and a richer understanding of these relations that have been mainly studied in developed settings.

The remainder of the paper is organized as follows: Section 2 reviews the previous literature and explains how the research hypotheses are raised in light of the previous literature. Section 3 describes our research design. Section 4 presents the empirical results. Finally, robustness checks are presented in Section 5, followed by Section 6 that concludes the study.

## **2. Literature Review and Hypotheses Development**

Empirical evidence on the negative impact of accrual-based earnings management on firm performance is well documented in the literature (e.g. Banker et al., 2019; Teoh et al., 1998; Dechow, 1994, Abbadi et al., 2016, among others). However, research on REM is still in its early stages, and there is no consensus regarding the impact of REM on firm future performance. In other words, whether REM activities destroy or improve subsequent operating performance is still a controversial issue.

Previous studies focused on examining the impact of real earnings manipulations on future operating performance mainly in developed settings (e.g., Barton and Simko, 2002; Bhojraj et al., 2009; Hirshleifer et al., 2004; Taylor and Xu, 2010; Zhang, 2008; Leggett et al. 2016; Al-Shattarat et al., 2018) with little attention has been paid to this investigation in emerging economies such as Tabassum et al. (2015) in Pakistan Gill et al. (2013) in India and Yasser & Soliman (2018) in Egypt. In relation to Jordan, the mainstream of prior scholarship (e.g. Abbadi et al., 2016; Alzoubi, 2016; Alzoubi, 2018; Idris et al., 2018) primarily focused on accrual-based earnings management. Others, such as Al-Haddad and Whittington (2019), Al-Haddad et al. (2019) and Alhadab et al. (2020), have been confined to exploring the prospects of real earnings manipulations in Jordan. Nevertheless, a study exploring the influence of REM on future operating performance in Jordan and in the MENA region at large is virtually non-existent. Our study, consequently, contributes to the extant literature in emerging economies by offering a more comprehensive understanding of the possible association between REM

and future operating performance in an under-researched emerging economy, which has recently undergone substantial regulative and economic transformations, namely Jordan.

A review of the previous literature reveals that two opposing arguments can explain the use of real earnings management, opportunistic earnings management argument and signalling earnings management argument.

## **2.1 Opportunistic Earnings Management Argument**

From an agency theory perspective, real earnings manipulations are value-destroying to shareholders because such manipulations normally harm the company's longer-term cash flows (Roychowdhury, 2006; Cohen and Zarowin, 2010; Leggett et al. 2016). Consistent with this view, previous literature shows that real earnings manipulations may have a negative impact on the subsequent performance of the REM firms. For example, Gunny (2005) examines the extent to which real earnings management affects subsequent operating performance for a sample of US firms over the 1988 to 2000 period; she focused on four types of real earnings management activities, namely, cutting the discretionary investment of R&D to decrease expense, (ii) reducing the discretionary investment of SG&A to decrease expense, (iii) selling fixed assets to report gains and (iv) offering price discounts or more lenient credit terms to increase sales and/or overproduce to decrease COGS expense. Her results reveal that all four real earnings management types are associated with lower ROA in the subsequent year. However, she identified firms with REM as those having abnormal activity measures and high net operating assets instead of having an incentive to meet an earnings benchmark. Thus, her results may be a function of her sample selection criteria because firms that have high net operating assets (whether they engage in REM or not) experience declines in subsequent operating performance (Barton and Simko, 2002; Hirshleifer et al., 2004; Taylor and Xu, 2010).

Moreover, Zhang (2008) shows that US firms that meet analysts' cash flow forecast engage in higher real earnings manipulations through discretionary expenditures, production and sales to inflate their earnings. Besides, they document a deterioration in the subsequent operating performance of REM firms. Likewise, Bhojraj et al. (2009) show that firms that beat analysts' forecasts have negative operating future performance and stock market performance in the subsequent three years.

Mizik (2010) shows that engaging in myopic real earnings manipulations by reducing marketing and R&D expenses has a greater negative impact on future stock returns and future financial performance. Further, using a sample of 1511 completed US offers over the 1987 to 2006 period, Cohen and Zarowin (2010) show that the significant post-SEO earnings declines are attributable to abnormal real manipulations around SEOs, suggesting that the costs of such manipulation outweighs its potential benefits in the SEO setting. Moreover, based on a sample of 119 firms listed on the Karachi Stock Exchange (KSE) for the years 2004–2011, Tabassum et al. (2015) find that Pakistani firms engaged in real earnings management activities through sales manipulation exhibit worse future financial



performance. Similarly, Vorst (2015) shows that, on average, firms with real earnings management through a reversal of an abnormal cut in discretionary investment exhibit lower long-term operating performance. However, he finds that such results vary significantly depending on the various incentives offered to engage in REM, as well as other factors that affect its associated costs and benefits. In the same vein, Leggett et al. (2016) contend that REM affects firms' future operating performance negatively for a sample of 1,597 US firms over 1988 to 2007. They suggest that the costs of engaging in REM are economically meaningful.

## **2.2 Signalling Earnings Management Argument**

According to Healy and Wahlen (1999), managers may use earnings management to signal private information and offer investors useful information for the decision-making process. This notion was first expressed by Holthausen and Leftwich (1983), who assert that informative earnings management aims to enhance value maximisation. Thus, the practice of earnings management may be motivated by beneficial intent; Fields et al. (2001, p.260) state that earnings management occurs "When managers exercise their discretion over the accounting numbers with or without restrictions. Such discretion can be either firm value maximising or opportunistic". Within the REM context, signalling (or real benefits) argument suggests that abnormal real activities intended just to meet zero earnings or previous year's earnings can improve the firm's credibility and reputation with stakeholders, strengthening, therefore, the relationships with these stakeholders and allowing for better future performance (Gunny and Zhang, 2014). Consistent with this view, previous literature has shown that firms that engage in REM experience a positive impact on subsequent performance and firm value. For example, Taylor and Xu (2010) show that firms identified as conducting real earnings management activities do not exhibit, on average, a significant decrease in the subsequent operating performance, implying that managers may manipulate earnings to convey private information about the firms' prospects and they carefully assess the costs and benefits of real earnings management activities to avoid harming future performance. Likewise, using a sample of US firms covering the years 1988 to 2002, Gunny (2010) points that firms that engage in real activities manipulations, just to meet earnings targets, have relatively better subsequent operating performance than firms that do not engage in REM and miss or just meet the targets, suggesting that engaging in REM is not opportunistic; however, it is consistent with the firm getting current-period benefits that allow it to perform better in the future. Chen et al. (2010) investigate the extent to which the market rewards firms for meeting or beating analysts' forecasts and how the reward differs across different forms of earnings management. They find differences in future operating performance consistent with how the market responds to the different forms of earnings management. Their results were interpreted as evidence consistent with REM being used as a signalling mechanism for future performance. Similarly, based on a sample of 7,966 US firm-year observations over the period 1995 to 2008, Zhao et al. (2012) find that, in general, real earnings

manipulations are associated with lower future operating performance. However, abnormal real activities intended just to meet earnings benchmarks are positively associated with future performance.

Most recently, using a sample from the United Kingdom, Al-Shattarat et al. (2018) investigate the effects of the magnitude of real earnings management on firms' future performance for the period that ranges from 2009 to 2015. Their results show that manipulating operating activities such as sales, discretionary expenditures, and production costs to meet earnings benchmarks has a significantly positive consequence for firms' subsequent operating performance and signals firms' good future performance. Further, they find that firms that manipulate their operating activities without meeting earnings benchmarks experience a decline in their subsequent operating performance. Jiang et al. (2018) recently investigated the association between firms' engagement in REM and the future performance in an international setting and whether the association is conditional upon country-level institutional factor. Using a large sample from 29 countries over the period that ranges from 2001 to 2015, they find that current-period REM is positively associated with future performance. Further, they state that firms operating in countries with strong institutional environments are driven by the positive performance effect. Finally, they show that when firms undertake REM in strong institutional environments, the future operating performance is enhanced only during a non-economic crisis period.

To sum up, as Zhao et al. (2012, p. 125) expressed, REM's impact on future operating performance is “A double-edged sword”. On the one hand, real earnings manipulations are value-destroying to shareholders because such manipulations normally harm the company's longer-term cash flows (e.g. Roychowdhury, 2006; Cohen and Zarowin, 2010; Mizik, 2010; Leggett et al., 2016; Vorst, 2016). On the other hand, real earnings management allows the managers to meet earnings benchmarks, giving the market a signal of better future performance (Gunny, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018). Given this, based on the results of previous empirical research, the current study firstly postulates that Jordanian firms that meet zero or last year earnings exhibit evidence of REM, then, given the conflicting empirical results regarding the positive or negative influence of REM on the future performance, we assume that REM which used just to meet these earnings benchmarks will affect Jordanian firms' future operating performance, no expectation for the direction of the relationship has been made. Thus, the following hypotheses are formulated:

*H1: Ceteris paribus, Jordanian firms that just meet earnings benchmarks (zero earnings or last year's earnings) experience evidence of real earnings manipulation.*

*H2: Ceteris paribus: There is an association between using REM intended just to meet earnings benchmarks and Jordanian firms' future performance.*

### **3. Data and Methodology**

#### **3.1 Sample and Data**

In order to test our hypotheses, we use a sample of Jordanian firms listed on the Amman Stock Exchange over the period that ranges from 2010 to 2018. The study covers two main sectors in Jordan, namely, the industrial and the service sectors. Following most previous literature in earnings management, the financial sector is excluded since it has a different financial reporting process than that of other industries. This exclusion of financial institutions is motivated by two main reasons. First, and most importantly, earnings management models for financial institutions are totally different from the non-financial sector; thus, our sample was mainly limited to non-financial corporations for compatibility problems. Second, excluding the financial sector is a prevalent procedure in earnings management studies. They substantially vary in terms of financial regulations and corporate governance provisions compared with their non-financial counterparts. The exclusion of these institutions results in 133 firms. These procedures result in a final sample that consists of 98 firms (882 firm-year observations), 53 firms belonging to the service sector and 45 firms belonging to the industrial sector. Table 1 illustrates the sample selection procedure for the test periods from 2010 to 2018.

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**INSERT TABLE 1 ABOUT HERE**  
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According to the one-digit SIC Code classification for six different industries, the current study runs the regressions for six different industries with a minimum of five observations in each industry. Additionally, similar to (Zang, 2012; Cohen et al., 2015; Cupertino et al., 2015; Alhadab et al., 2015; Dharwadkar et al., 2016), to eliminate the effect of outlier bias, the top and bottom 1 per cent of independent and dependent variables are winsorized. Given the secretive nature and inadequate disclosure of Jordanian reporting combined with the absence of any databases that provide financial data information, the data used in the analysis is valuable. It was not collected from one year using the survey method. Instead, it is manually processed then hand-collected over the period that ranges from 2010 to 2018<sup>1</sup>.

## **3.2 Earnings Management Measurement**

### **3.2.1 Real Earnings Proxy**

Following Roychowdhury (2006), we consider three matrices to measure the level of REM: the abnormal levels of cash flows from operations, production costs, and discretionary expenditures. According to Roychowdhury (2006) and Cohen and Zarowin (2010), managers may engage in sales manipulation by accelerating sales using price discounts or more lenient credit terms in the current period. The temporarily boosted sales volume will likely diminish when the firm returns to the original prices in the next fiscal year. Additional sales increase total earnings in the current period but result in

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<sup>1</sup> It is worth noting that, although the analysis covers the 2010 to 2018 period, the study also collected the 2009 and 2008 corporate financial data to compute the real earnings management measures. Further, one year ahead (2019) was also collected to compute the subsequent operating performance for the sample firms.

reduced margins due to price discounts, lenient credit provision and higher production costs relative to the ‘normal’ level. Therefore, this study expects an abnormally low cash flow from operating (ABCFO) in the current period due to sales manipulation.

Further, to manage earnings upward, firms can overproduce inventory to report a high operational margin, as the fixed overhead cost per unit declines with increasing production volume. Therefore, this study expects a higher value of the residual (ABPROD) estimated from Eq. (2) indicates greater manipulation through overproduction. Managers can also manipulate earnings by reducing discretionary expenditures to boost the current earnings. Therefore, based on Eq. (3), this study expects lower abnormal discretionary expenses (ABDISXP) when real earnings management is involved.

We estimate the normal levels of cash flow from operations, production costs and discretionary expenses using the following models. The models are estimated for each year and industry cluster with six observations.

$$\frac{CFO_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta S_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (1)$$

$$\frac{PROD_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta S_{it}}{TA_{it-1}} + \beta_4 \frac{\Delta S_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{DISXP_{it}}{TA_{it-1}} = a_0 + \beta_1 \frac{1}{TA_{it-1}} + \beta_2 \frac{S_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (3)$$

Where  $CFO_{it}$  is cash flow from operations taken from the statement of cash flows of firm  $i$  in year  $t$ ,  $A_{it-1}$  represents total assets at the end of year  $t - 1$ ,  $S_{it}$  is net sales for firm  $i$  in year  $t$ ,  $\Delta S_{it}$  is changes in net sales for firm  $i$  between year  $t - 1$  and year  $t$ , and  $\varepsilon_{it}$  is the regression residuals which represent our proxy for abnormal cash flow from operations.  $PROD_{it}$  is firm  $i$ 's production costs in year  $t$ , which equals the sum of the costs of goods sold plus changes in inventory, and  $\varepsilon_{it}$  is the regression residuals that represent our proxy for abnormal production costs.  $DISXP_{it}$  is the discretionary expenses including selling, general and administrative expenses, R&D, and advertising for firm  $i$  in year  $t$ , and  $\varepsilon_{it}$  is the regression residuals representing our proxy for abnormal discretionary expenditures.

Moreover, to capture the overall effects of real earnings management through these three activities in a comprehensive measure, and consistent with Cohen and Zarowin (2010), Zang (2012), Kang and Kim (2012), Goh et al. (2013), Ge and Kim (2014), Kuo et al. (2014), Achleitner et al. (2014), Doukakis (2014), Zhu et al. (2015) and Al-Shattarat et al. (2018), the study also constructs an overall proxy by combining the aforementioned individual proxies to capture the total effects of real earnings management. The abnormal operational cash flow and abnormal discretionary expenses are multiplied by  $-1$ . Accordingly, high values for the proxies for abnormal cash flow (ABCFO) and abnormal discretionary expenses (ABDISXP) indicate greater degrees of real activities management. The aggregate real management proxy is expressed as:

$$REM\_ALL = -Abnormal\ cash\ flow\ from\ operations + Abnormal\ production\ costs - Abnormal\ discretionary\ expenses\ (4)$$

Further, we divide this aggregate measure into two sub-aggregate measures; REM1 and REM2. REM1 equal to the additive inverse of abnormal cash flow from operations and the abnormal production costs. REM2 equals the sum of the additive inverse of abnormal cash flow from operations and the additive inverse of abnormal discretionary expenses. The larger value of REM\_ALL, REM1, and REM2 suggests greater use of real earnings management to manage the reported earnings.

### 3.2.2 Model Specification

Following the previous literature (e.g. Roychowdhury, 2006; Gunny, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018), the current study focuses on firms that meet either zero earnings or the previous year's earnings because such firms are expected to have strong incentives to meet earnings targets by manipulating real activities. Therefore, this study will first examine the managerial tendency to meet zero earnings and the previous year's earnings. Then it will investigate the impact of meeting these targets on the Jordanian firms' future operating performance. Accordingly, the current study adopts the following model:

$$REM_{it} = \alpha_0 + \beta_1 SUSPECT_{it} + \beta_2 FSIZE_{it} + \beta_3 MKTB_{it} + \beta_4 ROA_{it} + \beta_5-8 YEARDUM_{it} + \varepsilon_{it}\ (5)$$

Where REM is either the aggregate measure (REM\_ALL) or the two sub-aggregate measures (REM1 and REM2), SUSPECT as is an indicator variable that indicates the presence of just meeting earnings targets, it is set equal to one if (a) net income divided by total assets is between 0 and 0.01, or (b) the change in net income divided by total assets between t-1 and t is between 0 and 0.01, zero otherwise (Gunny, 2010; Francis et al., 2016). Based on the first hypothesis, the coefficient of the variable SUSPECT is expected to be positive and significant. The present study also controls several economic factors that may affect managers' tendency to meet earnings benchmarks through real earnings manipulation, including growth opportunities (MKTBK) and leverage (LEV). According to Roychowdhury (2006), suspect firm-years with more growth opportunities and high levels of outstanding debt are more likely to have more real earnings manipulations. Further, to control for systematic variations in earnings management with firm size and operating performance, the current study includes firm size (SIZE) and return on assets (ROA). Roychowdhury (2006) runs 15 separate annual cross-sectional regressions and reports the means of the coefficients across industry years. However, an arithmetic mean of coefficients will not consider the fact that the number of observations varies across different years. Thus, in line with Zang (2012), one regression is run with a year indicator incorporated to account for any variation related to year effects in order to avoid such a problem. It is worth noting here that since the dependent variables are expressed as deviations from industry year means, all the aforementioned control variables are also measured in the same way (Roychowdhury, 2006; Zang, 2012; Al-Shattarat et al., 2018; Jiang et al., 2018).

Secondly, in order to investigate the impact of REM on Jordanian firms' future performance and to disentangle the two conflicting effects of real earnings management (value-destroying and signalling or (real benefits)) for the sample firms, this study follows prior studies (e.g. Gunny, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018) and adopts the following regression model:

$$CFO_{t+1} = \alpha_0 + \beta_1 REM\_DUM_{it} + \beta_2 REM\_DUM_{it} * SUSPECT_{it} + \beta_3 SUSPECT_{it} + \beta_4 ROA_{it} + \beta_5 STKRET_{it} + \beta_6 FSIZE_{it} + \beta_7 MKTB_{it} + \beta_8 ZSCORE_{it} + \beta_{9-13} INDDUM_{it} + \beta_{14-17} YEARDUM_{it} + \varepsilon_{it} \quad (6)$$

Where  $CFO_{t+1}$  is the industry-adjusted future cash flow from operations equals the difference between firm-specific CFO and the median CFO for the same year and industry (one-digit SIC), REM is either the aggregate measure (REM\_ALL) or the two sub-aggregate measures (REM1 and REM2). Consistent with Gunny (2010) and Zhao et al. (2012), these proxies for abnormal real activities are converted into dummies (i.e., REM\_ALL\_D, REM1\_D, and REM2\_D) with a value of 1 if they are above the corresponding medians and 0 otherwise. For convenience, the current study uses REM\_DUM to refer to these dummies. Further, the study uses SUSPECT as is an indicator variable that indicates the presence of just meeting earnings targets; it is set equal to one if (a) net income divided by total assets is between 0 and 0.01, or (b) the change in net income divided by total assets between t-1 and t is between 0 and 0.01, zero otherwise. The coefficient of the standalone term REM\_DUM,  $\beta_1$ , captures the main effect of abnormal real activities on future performance. The coefficient of the interaction term REM\_DUM\* SUSPECT,  $\beta_2$ , captures the incremental effect of real earnings management (i.e., abnormal real activities in the presence of just meeting earnings targets) relative to abnormal real activities in the absence of just meeting earnings targets.

According to Gunny (2010), a negative association between just meeting earnings benchmarks by using REM and subsequent performance suggests that opportunistic managers use operational or accounting discretion to harm the shareholders. For instance, managers might engage in REM to just meet an earnings target to increase stock prices, job security, or bonuses (Matsunaga and Park, 2001). At the same time, a positive association is consistent with managers using operational discretion to just meet benchmarks in order to: (i) signal future firm value or (ii) achieve benefits that allow the firm to work better in the future. According to Gunny and Zhang (2014), the signalling explanation emphasises that firms manage earnings to signal superior future performance; meeting the forecast (through earnings management) is a credible signal about a firm's favourable position. Thus, subsequent operating performance is expected to be better than those who miss the target. In the Jordanian setting, the explanation of the real benefits proposes that the act of meeting an earnings target may provide benefits, such as improving the firm's credibility and reputation with stakeholders (Burgstahler and Dichev, 1997). Such benefits could strengthen the relationships with such stakeholders as suppliers, customers, and creditors, which could boost future performance (Gunny and Zhang, 2014).

In order to control for the association between stock performance and future earnings, the stock return is included in the model. STKRET equal to the difference between firm-specific annual stock return and the median annual stock return for the same year and industry (one-digit SIC). FSIZE is the difference between the firm-specific natural logarithm of total assets and the median natural logarithm of total assets for the same year and industry (one-digit SIC). MKTB is the difference between the firm-specific market value of equity divided by the book value of equity and the median market value of equity divided by the book value of equity for the same year and industry (one-digit SIC). To control for the financial health of the firm, the Z-score for emerging markets developed by Altman (2005) is used in this model, which is:  $EM\ Z\text{-score} = 3.25 + 6.56 (\text{working capital} / \text{total assets}) + 3.26 (\text{retained earnings} / \text{total assets}) + 6.72 (\text{operating income} / \text{total assets}) + 1.05 (\text{book value of equity} / \text{total liabilities})$ . The current study industry-adjusted all the continuous control variables before running the regressions consistent with the dependent variable.

## 4. Results and Discussions

### 4.1 Descriptive Statistics

This section provides the descriptive statistics for the dependent, independent and control variables used to test our hypotheses. Table 2 is divided into two panels: Panel A illustrates the mean, median, standard deviation, 25% and 75% quantile values, Skewness and Kurtosis for the full sample variables across the five-year sample period. At the same time, Panel B reports the descriptive statistics for these variables after splitting the full sample into two sub-samples: suspect and non-suspect sample firms.

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**INSERT TABLE 2 ABOUT HERE**  
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As can be seen from Panel A in Table 2, and similar to previous studies (e.g. Gunny, 2010; Zang, 2012; Kang and Kim, 2012; Goh et al., 2013; Kuo et al., 2014 and Jiang et al., 2018), the means of earnings management proxies in this study are almost zero, implying that the models fit the data fairly well. The median for the comprehensive REM measure equals 1.5%, which is slightly higher than the 1.3% reported in China (Kuo et al., 2014). Further, the medians for the two sub-aggregate real proxies (REM1 and REM2) equal 6% and 7%, respectively. While REM1 ranges from -0.070 to 0.078, REM2 ranges from -0.051 to 0.062. SUSPECT has a mean (median) of 10.9% (0) of the total sample. This is similar to the mean (median) for suspect firms reported by Zhao et al. (2012). With regard to the future cash flow from operations for the subsequent year ( $CFO_{t+1}$ ), it shows a mean (median) of 5.4% (4.6%) respectively; ranging from -0.18% to 10.08%. Stock returns (STKRET) shows a mean of -5.6%, ranging from -24% to 8.1%. Finally, the financial health for Jordanian firms proxied by Altman's ZSCORE (2005) for emerging markets (ZSCORE) shows a mean of 9.9, ranging between 4.6 and 10.5.

Panel B of Table 2 shows that 189 firm-year observations fall within the suspect category, and 693 firm-year observations fall within the non-suspect category. The descriptive analysis for these two sub-samples provides initial evidence in support of our research hypotheses. Consistent with previous literature (e.g. Roychowdhury, 2006; Zang, 2012; Zhao et al., 2012), the means of the aggregate measures of real earnings management (REM\_All, REM1, and REM2), for suspect firms-years sample, are significantly higher than that of the non-suspect firms-years sample. This provides initial evidence that suspect firms are more likely to manipulate their real activities in order to achieve certain benchmarks, which, in turn, corroborates the validity of focusing on such suspect firm years in this study. Furthermore, Panel B shows that the subsequent cash flow from operations (CFO<sub>t+1</sub>) for suspect firms is higher than that of non-suspect firms. In particular, suspect firms have a mean of 5.2% compared with 4.6% for non-suspect firms, providing initial evidence and support for the notion that suspect firms, which engage in more REM, experience higher subsequent operating cash flows. As for control variables, suspect firms show a higher return on assets (ROA) than the rest of the sample. In particular, the mean ROA for suspect firms is equal to 0.46%, compared to 0.45% for the rest of the sample. In addition, non-suspect firms have a greater average market to book value (mean MKTB= 1.36) compared to suspect firms' sample (mean MKTB = 0.972). However, the stock returns for suspect firms are higher than that of non-suspect firms as suspect firms show a mean of -3.8% compared to -5.8% for non-suspect firms. In addition, non-suspect firms appear to be in a healthier financial condition than suspect firms. Additionally, based on conducting a two-tailed t-test (mean comparison T-Test), Panel B of Table 2 mostly shows significant differences between the means of the research variables for the Suspect firms and the means of variables for non-suspect firms. Overall, and consistent with previous studies (e.g. Roychowdhury, 2006; Zhao et al., 2012; Al-Shattarat et al., 2018), suspect and non-suspect firm-years are found to be different in terms of their financial aspects in the Jordanian context.

## **4.2 Multivariate Analysis**

### **4.2.1 Real Earnings management to Achieve Zero Earnings or Previous Year's Earnings in Jordanian Listed Firms**

Table 3 presents the results of multivariate pooled regression analysis for the first model used in this study. Following Roychowdhury (2006), all reported p values are based on the Newey and West procedure.

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**INSERT TABLE 3 ABOUT HERE**  
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As can be seen from the above Table and consistent with our prediction in the first hypothesis, there is a significant positive relationship between SUSPECT and the aggregate measure of REM



(coefficient = 0.03, and  $p < 0.05$ ), indicating that Jordanian firms that meet zero earnings or previous year's earnings are engaged in real activities manipulation. More specifically, Jordanian firms have unusually low abnormal CFO, low abnormal discretionary expenses, and high abnormal production costs. This finding is consistent with previous literature reviews, such as Roychowdhury (2006) and Gunny (2010). Also, it is consistent with Zang (2012), where the suspects are firm-years just beating/meeting zero benchmarks.

With respect to control variables, the results show that the size of the firm (FSIZE) is statistically insignificant. This is consistent with the results reported by Roychowdhury (2006). However, the coefficient on the market to book ratio (MKTB), as shown in Table 3, is negative (-0.038) and is significant at 1% (t.statistic = -3.43), suggesting that firms with high growth opportunities are less likely to manage real activities to meet certain earnings benchmarks. This is consistent with the findings of Roychowdhury (2006), Zang (2012), Ge and Kim (2014) and Al-Shattarat et al. (2018). With regard to the return on assets, the result shows that the coefficient of the (ROA) is negative and significant (coefficient = -0.62, and  $p < 0.01$ ), indicating that better-performing firms are less likely to manage real activities to achieve zero earnings or previous year's earnings. This is consistent with the results reported by Kang and Kim (2012) and Talbi et al. (2015).

Table 4 exhibits the previous multivariate pooled regression results using the two sub-aggregate REM measures as dependent variables. In particular, the study uses the REM1, which refers to the sum of abnormal production costs, and the additive inverse of abnormal cash flows from operations, and REM2, which refers to the sum of the additive inverse of abnormal cash flows from operations and the additive inverse of abnormal discretionary expenses, as dependent variables. The Table provides inferences similar to those of the previous analysis with only two exceptions. Firstly, when using the REM1 as a dependent variable, the SUSPECT appears to be positively but insignificantly related to REM1, indicating that Jordanian firms do not commonly use either sales manipulations or overproduction to meet certain earnings benchmark. Therefore, in the following subsection, the study will split up this measure (REM1) into its main individual components, namely; abnormal production costs and the abnormal cash flow from operations, to find out which suspect firms use particular real activity in order to achieve zero earnings or last year earnings targets. Secondly, evidence of a positive relationship appeared between the firm size and the two sub-aggregate REM measures, indicating that larger firms are more likely to manipulate real activities to meet the desired earnings targets.

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**INSERT TABLE 4 ABOUT HERE**  
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#### ***4.2.1.1 Splitting up the First REM Aggregate Measure (REM1)***

Table 5 presents the results of multivariate pooled regression analysis for each individual component of REM1, namely the abnormal production costs (ABPROD) and the abnormal cash flow from operations (ABCFO). Following Roychowdhury (2006), all reported p values are based on the Newey and West procedure.

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**INSERT TABLE 5 ABOUT HERE**  
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As can be seen from the above table, when using the ABPROD to proxy for real earnings manipulations through overproduction, the coefficient of SUSPECT is significant and positive (coefficient = 0.038, and  $p < 0.10$ ), indicating that Jordanian firms that meet zero earnings or previous year's earnings have unusually high production costs. This result is consistent with Roychowdhury (2006) and Gunny (2010), who found that suspect firms experience unusually high production costs. Also, it is consistent with Zang (2012), where the suspects are firm-years just beating/meeting zero benchmarks. As for sales manipulations, Table 5 shows that the coefficient of the (ABCFO) is positive. However, it is insignificant, suggesting that Jordanian firms are less likely to use sales manipulations to meet earnings benchmarks. Instead, they rely more on overproduction. This outcome is not in line with those of prior studies in the US such as Gunny (2010) and Leggett et al. (2016) and in the UK such as Shattarat et al. (2018) that provided evidence suggests that companies that manipulate their sales in the incidence of meeting earnings benchmarks are significantly associated with subsequent operating performance. In the unique setting of Jordan, we argue that REM activities through sales-based manipulations impair credit rating and are linked with higher bond yield spreads (Ge and Kim, 2014). Thus, the positive coefficient for REM1, which was reported in Table 4, is mainly attributed to overproduction practices, not to sales manipulations.

The inferences on the control variables in the model remain unchanged and consistent with those reported in the previous analysis.

#### **4.2.2 The Impact of Real Earnings Management, Intended to Achieve Certain Benchmarks on Jordanian Firms' Future Operating Performance**

Given the existence of REM to meet zero earnings or previous year's earnings, this study examines the association between Jordanian firms' future operating performance, measured by the difference between firm-specific CFO and the median CFO for the same year and industry (one-digit SIC), and REM intended to achieve zero earnings or previous year's earnings. To proxy for the overall impact of REM on future performance, the aggregate real earnings measure is used in this study, along with the two sub-aggregate measures (REM1 and REM2). As previously discussed, these proxies are converted into dummies with a value of 1 if they are above the corresponding medians and 0 otherwise. The current study industry-adjusted all the continuous control variables before running the regressions

consistent with the dependent variable. Table 6 presents the results of multivariate pooled regression analysis for this model. Following Hussainey and Walker (2009), Gunny (2010), Zhao et al. (2012) and Al-Shattarat et al. (2018), the t-tests in these models are computed using robust standard errors correcting for firm clusters.

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**INSERT TABLE 6 ABOUT HERE**

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As can be seen from Table 6 and consistent with Gunny (2010), Zhao et al. (2012), and Al-Shattarat et al. (2018), the main effect of REM is negative and significant (t-statistic = -1.83,  $p < 0.10$ ), suggesting a general value-destroying effect of abnormal real activities in the absence of just meeting earnings benchmarks. However, as expected in the first hypothesis, the table shows that the interaction term (i.e., REM\_DUM\* SUSPECT) is significantly and positively associated with future operating performance (t-statistic = 2.99,  $p < 0.01$ ), which suggests that suspect firms using real earnings management activities to meet zero or last year earnings have better subsequent operating performance. This implies that the benefits of achieving the aforementioned benchmarks can offset the negative impact of real earnings manipulations on future performance. This evidence is consistent with signalling (or real benefits) rather than opportunism, suggesting that abnormal real activities intended just to meet zero earnings or previous year's earnings can improve the firm's credibility and reputation with stakeholders, strengthening, therefore, the relationships with these stakeholders and allowing for better future performance (Gunny and Zhang, 2014). This is consistent with the findings of previous studies such as Gunny (2010), Zhao et al. (2012), Al-Shattarat et al. (2018) and Jiang et al. (2018), which also document a significant positive relationship between REM intended to meet earnings benchmarks and firm future operating performance.

Table 6 also reports the bootstrapped<sup>2</sup> standard errors. The results of the bootstrapping process give credibility to the main findings. Turnings to control variables, the coefficient estimate on the industry-adjusted ROA is significant and positive, indicating that current-period return on assets is positively associated with future industry-adjusted CFO. Moreover, in line with Kothari and Sloan (1992), Gunny (2010) and Zhao et al. (2012), the industry-adjusted stock return is positive and significant (coefficient = 0.38, and  $p < 0.10$ ), suggesting that firms with greater returns have better future operating performance. However, similar to Zhao et al. (2012), firm size, growth opportunities and financial health are not statistically significant. Further, qualitatively similar results appeared when

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<sup>2</sup> The bootstrap is a computational resampling technique for finding standard errors (and in fact other things such as confidence intervals), with the only input being the procedure for calculating the estimate (or estimator) of interest on a sample of data (Dopazo, 1994). The idea of the bootstrap is to mimic the process of randomly sampling from an assumed infinite population. Ordinarily, we take a sample from a population, and the standard error reflects the variability between the estimates we would obtain if we repeatedly took samples from the population (Efron, 1988). The bootstrap mimics this process by treating our observed sample as if it were the population. It then repeatedly takes (say B) samples (of the same size as the original sample), with replacement, from our original sample (note there are other types of bootstrap sampling. This is so called non-parametric bootstrap sampling) (Bisani & Ney, 2004). For each of these B samples, we then calculate our estimate of interest. We can then use the sample standard deviation of these estimates, across bootstraps, as an estimate of standard error. (Dopazo, 1994).

using the two sub-aggregate measures (REM1 and REM2) to test for the impact of REM on firms' future performance. In particular, as Table 7 shows, the interaction term (i.e., REM\_DUM\* SUSPECT) for REM1 and REM2 is positive and significant (t-statistic =2.73, and 2.71, respectively), supporting the previous result and ensuring that Jordanian firms with abnormal real activities used just to meet earnings targets have better subsequent operating performance than other firms.

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**INSERT TABLE 7 ABOUT HERE**  
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To sum up, as previous literature such as Gunny (2010), Zhao et al. (2012), Al-Shattarat et al. (2018) and Jiang et al. (2018) found, the current study also provides evidence on the positive impact of real activities-based manipulations on future operating performance, indicating that Jordanian firms that just meet earnings targets by engaging in REM have significantly better subsequent industry-adjusted cash flow from operations. This implies that earnings management through real activities is not totally opportunistic in Jordan, but it could be used for attaining benefits that lead to better future performance (Gunny, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018). This evidence is consistent with the signalling earnings management argument, which suggests that abnormal real activities intended just to meet zero earnings or previous year's earnings can improve the firm's credibility and reputation, strengthening, therefore, the relationship with stakeholders and allowing for better future performance (Gunny and Zhang, 2014). This study is the first in Jordan and the MEAN region overall to provide this evidence to the researchers' best knowledge.

## **5. Robustness Check**

### **5.1 Alternative Measure for Firms' Future Operating Performance**

In this study's primary analysis, the firm's future performance was measured using the adjusted cash flow from operations. However, in this section, the primary analysis is re-estimated using an alternative definition of future performance. Particularly, following Gunny (2010), Al-Shattarat et al. (2018) and Jiang et al. (2018), the adjusted return on assets is used to proxy for the subsequent operating performance. That is,  $ADJ\_ROA_{t+1}$  is the difference between firm-specific ROA and the median ROA for the same year and industry (one-digit SIC). Further, the model controls for the industry-adjusted return on equity instead of the return on assets. Similar to the primary analysis, the t-tests in this analysis are computed using robust standard errors correcting for firm clusters. The results of this analysis are reported in the following Table.

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**INSERT TABLE 8 ABOUT HERE**  
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As the above table shows, the results of this analysis are qualitatively similar to those reported previously in the main analysis. However, these regressions provide better results in terms of an adjusted R-squared of 32.09%, 32.21%, and 31.66% for REM\_ALL, REM1 and REM2, respectively. The results demonstrate that the interaction term (i.e., REM\_DUM\* SUSPECT) is significantly and positively associated with future operating performance in all models. This supports our main results and suggests that abnormal real activities intended just to meet earnings benchmarks can strengthen relationships with stakeholders such as suppliers, customers and creditors, in turn, allowing for better future performance (Gunny, 2010; Zhao et al., 2012; Gunny and Zhang, 2014; Al-Shattarat et al., 2018; Jiang et al., 2018). The inferences on the other variables in the model remain unchanged and comparable to those reported in the main analysis. However, while the firm size and financial health were insignificant in the main analysis, they become statistically significant under this analysis, indicating that larger firms with better financial health have better future operating performance.

## **5.2 Splitting up the Second REM Aggregate Measure (REM2)**

Under the main analysis, the present study used the aggregate measures of REM to proxy for the overall real earnings manipulations. However, splitting up the aggregate measures into their main components can provide more insights into the extent to which each individual real activity is associated with firms just meeting earnings benchmarks. Consequently, this subsection splits up the main components of REM2, which is composed of abnormal cash flow from operations and abnormal discretionary expenditures<sup>3</sup>. Table 9 reports the results of this analysis and shows that the coefficient of the SUSPECT is significant and positive (coefficient = 0.013, and  $p < 0.01$ ), suggesting that Jordanian firms that meet zero or last year earnings are more likely to manipulate earnings by cutting down discretionary expenditures. Thus, manipulation of discretionary expenses is perhaps the most convenient way to manage earnings. This fact is well reflected in the positive sign and significance (t.statistic = 2.88\*\*\*) of the coefficient on SUSPECT in the abnormal discretionary expenses model. This type of manipulation (ABDISXP) provides a great deal of flexibility in the timing and amount of spending. Therefore, managers may find this manipulation method less costly and easy compared to other manipulations methods. This supports confirms the robustness of the main regression results. This result is consistent with Roychowdhury (2006) findings and Zang (2012), where the suspects are firm-years just beating/meeting zero benchmark or last year earnings. The regression results for other variables reveal similar inferences to those obtained by the primary regression models.

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**INSERT TABLE 9 ABOUT HERE**

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<sup>3</sup> The first aggregate measure (REM1) has been already broken into its main components in Section 4.2.1.1.

### 5.3. Additional Control Variables: Sector Type and Foreign Ownership

Also, in an effort to check the sensitivity of our findings to different levels of foreign ownership and various industrial activities, we rerun the OLS regression models for the two main proxies of the future operating performance (i.e., CFO<sub>t+1</sub> and ROA<sub>t+1</sub>) using additional control variables, which are foreign ownership and industry type. The findings suggest that industry type and foreign ownership are positively and significantly associated with both subsequent operating performance proxy. This means that firms characterized by higher foreign ownership are likely to achieve better subsequent operating performance.

Likewise, firms operating in mining, construction and manufacturing industries are associated with better future performance than those working in services, retail trade, and wholesale sectors. These additional test results give more credibility to our main findings (See Models 1 and 2 of Table 10). For example, the results demonstrate that the interaction term (i.e., REM\_DUM\* SUSPECT) is significantly and positively associated with future operating performance proxies, i.e., CFO<sub>t+1</sub> and ROA<sub>t+1</sub>. This also implies that abnormal real activities intended to meet earnings benchmarks to satisfy the needs of powerful stakeholders. This allows for better future operating performance (Gunny, 2010; Zhao et al., 2012; Gunny and Zhang, 2014; Al-Shattarat et al., 2018; Jiang et al., 2018).

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### 5.4. Endogeneity Check: Two-Step System GMM Model

Following prior work (e.g., Gerged, 2020; Gerged et al., 2020; Ullah et al., 2018; Reguera-Alvarado et al., 2016), we estimate a two-step GMM model as a robustness analysis to overcome the potential incidence of endogeneity concerns arising from the reversal causality relations between abnormal real activities and future operating performance proxies. Specifically, we incorporate the lags of last year/two-year operating performance to distinguish between *static and dynamic* panel data estimators. Statistically speaking, by including lagged versions of the proxies of operating performance, the GMM estimation controls for the endogeneity concerns by internally transforming the data as the previous values of future operating performance proxies are subtracted from its present ones. The process of internal transformation appeared to reduce the number of total observations, thus enhancing the 2-step dynamic GMM estimators (Wooldridge, 2016).

Models 3 and 4 of Table 10 show the findings of estimating the 2-step GMM models. Those findings are largely comparable to those presented in Tables 6 and 8. To the extent that the results are statistically similar to these primary estimations, we are fairly confident that our findings are statistically robust.

## 6. Conclusion

The present paper examines the consequences of REM on Jordanian firms subsequent operating performance. We contribute to earnings management literature by undertaking a comprehensive examination of three types of REM, namely, abnormal cash flow from operations, abnormal production costs, and abnormal discretionary expenditures in the Jordanian context. While there has been limited inconclusive research examining the consequences of REM, our study is the first in Jordan and the Middle East region overall to provide empirical evidence on the use of real earnings manipulations to meet zero or previous year earnings. Also, it is the first to document a positive relationship between REM and Jordanian firms' future operating performance. Drawing upon panel data of 882 non-financial listed Jordanian firm-year observations over the period 2010–2018, we find that Jordanian firms that just meet zero or last year's earnings exhibit evidence of real activities manipulations. More specifically, suspect firms show unusually low abnormal discretionary expenses and unusually high abnormal production costs. Furthermore, supporting the signalling earnings management argument, our results show that abnormal real-based activities intended just to meet zero earnings or previous year's earnings improve Jordanian firm's subsequent operating performance. This implies that REM is not totally opportunistic, but it could be used for attaining benefits and lead to better subsequent operating performance (Gunny, 2010; Chen et al., 2010; Zhao et al., 2012; Al-Shattarat et al., 2018; Jiang et al., 2018).

Our evidence implies that managers appeared to resort to REM through discretionary expenses reductions. This type of manipulation is deemed one of the most convenient ways to manipulate earnings as it provides more flexibility in terms of time and spending. Therefore, we recommend that internal auditors in the Jordanian listed companies concentrate their efforts on limiting the discretionary expenses-based manipulations to reduce real earnings management. Our findings also have important implications for policymakers, regulators and investors in their attempts to constrain earnings management practices and to enhance the financial reporting quality in Jordan.

Our study represents an important extension to the current literature on real earnings management practices in fast-growing emerging markets like Jordan. However, this study is subject to some caveats. First, as raised by Roychowdhury (2006) and Zang (2012), companies that just meet earnings benchmarks might not be the only firms to manage earnings. Other companies might manipulate reported earnings and still miss these benchmarks or manipulate their earnings for unobservable and internal objectives. Second, there is also a possibility that some suspect firms might manage their earnings downward to just above the targets. Future research should take into account these issues and examine other benchmarks. Third, our evidence was limited to examining the impact of abnormal real earnings management activities on two future operating performance proxies (i.e.,

CFO and ROA). Further studies are recommended to include more proxies for operating performance, such as two-year-ahead industry-adjusted return on assets and One-year-ahead industry-adjusted financial performance return on equity. Finally, future studies are recommended to examine corporate governance factors, such as the board of directors, sub-board committees, internal audit, external audit function, and earnings management practice in emerging economies.

## References

- Abbadi, S.S., Hijazi, Q.F. and Al-Rahahleh, A.S. (2016). “Corporate governance quality and earnings management: Evidence from Jordan”. *Australasian Accounting, Business and Finance Journal*, 10(2), pp.54-75.
- Abed, S., Al-Attar, A., & Suwaidan, M. (2012). “Corporate governance and earnings management: Jordanian evidence”. *International Business Research*, 5(1), pp 216-225.
- Achleitner, A., Günther, N., Kaserer, C. and Siciliano, G. (2014). “Real earnings management and accrual-based earnings management in family firms”, *European Accounting Review*, 23(3), pp. 431-461.
- Al-Fayoumi, N., Abuzayed, B. and Alexander, D. (2010). “Ownership structure and earnings management in emerging markets: The case of Jordan”, *International Research Journal of Finance and Economics*, 38(1), pp. 28-47.
- Alhadab, M., Abdullatif, M., and Mansour, I. (2020) “Related Party Transactions and Earnings Management in Jordan: The Role of Ownership Structure”. *Journal of Financial Reporting and Accounting* [Online] ahead-of-print (ahead-of-print). available at <https://doi.org/10.1108/JFRA-01-2019-0014>
- Alhadab, M., Clacher, I. and Keasey, K. (2015). “Real and accrual earnings management and IPO failure risk”, *Accounting and Business Research*, 45(1), pp. 55-92.
- Al-Haddad, L., Gerged, A., & Saidat, Z. (2019). “Managing earnings using classification shifting: novel evidence from Jordan”. *Academy of Accounting and Financial Studies Journal*, 23(2), pp. 1-14.
- Al-Haddad, L., & Whittington, M. (2019). “The impact of corporate governance mechanisms on real and accrual earnings management practices: evidence from Jordan”. *Corporate Governance: The International Journal of Business in Society*, 19(6), pp. 1167-1186.
- Al-Shattarat, B., Hussainey, K., & Al-Shattarat, W. (2018). “The impact of abnormal real earnings management to meet earnings benchmarks on future operating performance”. *International Review of Financial Analysis*. Forthcoming.
- Alzoubi, E.S.S. (2018) “Audit Quality, Debt Financing, and Earnings Management: Evidence from Jordan”. *Journal of International Accounting, Auditing and Taxation* 30, pp. 69–84.
- Alzoubi, E. S. S. (2016). “Ownership structure and earnings management: evidence from Jordan”. *International Journal of Accounting and Information Management*, 24(2), pp. 135-161.
- ASE Annual Report (2019). “Amman Stock Exchange”. Available at: <https://www.ase.com.jo/sites/default/files/2019-07/ASE%20Annual%20Report%202018.pdf>.



- Banker, R. D., Byzalov, D., Fang, S., & Jin, B. (2020). "Operating asymmetries and non-linear spline correction in discretionary accrual models". *Review of Quantitative Finance and Accounting*, 54(3), pp. 803-850.
- Bartov, E., Givoly, D. and Hayn, C. (2002). "The rewards to meeting or beating earnings expectations", *Journal of Accounting and Economics*, 33(2), pp. 173-204.
- Becht, M., & Röell, A. (1999). Blockholdings in Europe:: An international comparison. *European Economic Review*, 43(4-6), 1049-1056.
- Bhojraj, S., Hribar, P., Picconi, M., & McInnis, J. (2009). Making sense of cents: An examination of firms that marginally miss or beat analyst forecasts. *The Journal of Finance*, 64(5), 2359–2386.
- Bisani, M., & Ney, H. (2004). "Bootstrap estimates for confidence intervals in ASR performance evaluation". In *2004 IEEE International Conference on Acoustics, Speech, and Signal Processing*, 1, pp. 1-409.
- Burgstahler, D. C. and Dichev, I. D. (1997). "Earnings, adaptation and equity value", *The Accounting Review*, 72(2), pp. 187-215.
- Chen, Jeff Zeyun and Rees, Lynn L. and Sivaramakrishnan, Shiva, On the Use of Accounting vs Real Earnings Management to Meet Earnings Expectations - A Market Analysis (November 1, 2010). Available at SSRN 1070122.
- Cohen, D. A. and Zarowin, P. (2010). "Accrual-based and real earnings management activities around seasoned equity offerings", *Journal of Accounting and Economics*, 50(1), pp. 2-19.
- Cohen, D. A., Dey, A. and Lys, T. Z. (2008). "Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods", *The Accounting Review*, 83(3), pp. 757-787.
- Cohen, D. A., Pandit, S., Wasley, C. E. and Zach, T. (2015). "Measuring real activity management". Working paper, available at SSRN 1792639.
- Cohen, J., Krishnamoorthy, G. and Wright, A. M. (2002). "Corporate governance and the audit process", *Contemporary Accounting Research*, 19(4), pp. 573-594.
- Cupertino, C. M., Martinez, A. L. and da Costa, N. C. (2015). "Earnings manipulations by real activities management and investors' perceptions", *Research in International Business and Finance*, 34, pp. 309-323.
- Dechow, P. M. (1994). "Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals", *Journal of Accounting and Economics*, 18(1), pp. 3-42.
- Dechow, P. M. and Skinner, D. J. (2000). "Earnings management: Reconciling the views of accounting academics, practitioners, and regulators", *Accounting Horizons*, 14(2), pp. 235-250.
- Dharwadkar, R., Harris, D. G., Shi, L. and Zhou, N. (2016). "Audit Committee Interlocks and the Contagion of Accrual-Based and Real Earnings Management". Working paper, available at SSRN 2729855.
- Dopazo, J. (1994). "Estimating errors and confidence intervals for branch lengths in phylogenetic trees by a bootstrap approach". *Journal of Molecular Evolution*, 38(3), pp. 300-304.
- Efron, B. (1988). "Bootstrap confidence intervals: good or bad?", *Psychological Bulletin*, 104(2), pp. 293-296.

- Enomoto, M., Kimura, F. and Yamaguchi, T. (2015). "Accrual-based and real earnings management: An international comparison for investor protection", *Journal of Contemporary Accounting & Economics*, 11(3), pp. 183-198.
- Ferentinou, A. C. and Anagnostopoulou, S. C. (2016). "Accrual-based and real earnings management before and after IFRS adoption: The case of Greece", *Journal of Applied Accounting Research*, 17(1), pp. 2-23.
- Fields, T. D., Lys, T. Z. and Vincent, L. (2001). "Empirical research on accounting choice", *Journal of Accounting and Economics*, 31(1), pp. 255-307.
- Francis, B., Hasan, I. and Li, L. (2016). "A cross-country study of legal-system strength and real earnings management", *Journal of Accounting and Public Policy*, 35(5), pp. 477-512.
- Franz, D. R., HassabElnaby, H. R. and Lobo, G. J. (2014). "Impact of proximity to debt covenant violation on earnings management", *Review of Accounting Studies*, 19(1), pp. 473-505.
- Ge, W., & Kim, J. B. (2014). "Real earnings management and the cost of new corporate bonds". *Journal of Business Research*, 67(4), pp. 641-647.
- Gerged, A. M., Beddewela, E. S., & Cowton, C. J. (2020). "Is corporate environmental disclosure associated with firm value? A multi-country study of Gulf Cooperation Council firms". *Business Strategy and the Environment*, Forthcoming DOI: [10.1002/bse.2642](https://doi.org/10.1002/bse.2642)
- Gerged, A., M. (2020). "Factors affecting corporate environmental disclosure in emerging markets – the role of corporate governance structures". *Business Strategy and the Environment*, Forthcoming: DOI [10.1002/bse.2642](https://doi.org/10.1002/bse.2642)
- Gill, A., Biger, N., Mand, H. S., & Mathur, N. (2013). "Earnings management, firm performance, and the value of Indian manufacturing firms". *International Research Journal of Finance and Economics*, 116(1), pp. 121-131.
- Graham, J. R., Harvey, C. R. and Rajgopal, S. (2005). "The Economic Implications of Corporate Financial Reporting", *Journal of Accounting and Economics*, 40(1), pp. 3-73.
- Gunny, K. A. (2010). "The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks", *Contemporary Accounting Research*, 27(3), pp. 855-888.
- Gunny, K. and Zhang, T. C. (2014). "Do managers use meeting analyst forecasts to signal private information? Evidence from patent citations", *Journal of Business Finance & Accounting*, 41(7-8), pp. 950-973.
- Gunny, K. A. (2005). "What are the consequences of real earnings management?". Working paper, Citeseer.
- Healy, P. M. and Wahlen, J. M. (1999). "A review of the earnings management literature and its implications for standard setting", *Accounting Horizons*, 13(4), pp. 365-383.
- Holthausen, R. W. and Leftwich, R. W. (1983). "The economic consequences of accounting choice implications of costly contracting and monitoring", *Journal of Accounting and Economics*, 5, pp. 77-117.
- Idris, M., Siam, Y.A., and Nassar, M. (2018) 'Board Independence, Earnings Management and the Moderating Effect of Family Ownership in Jordan'. *Management & Marketing. Challenges for the Knowledge Society*, 13(2), 985–994

- Jiang, H., Habib, A. and Wang, S. (2018). Real Earnings Management, Institutional Environment, and Future Operating Performance: An International Study. *The International Journal of Accounting*, 53(1), pp.33-53.
- Kang, S. and Kim, Y. (2012). “Effect of corporate governance on real activity-based earnings management: evidence from Korea”, *Journal of Business Economics and Management*, 13(1), pp. 29-52.
- Kothari, S. P. and Sloan, R. G. (1992). “Information in prices about future earnings: Implications for earnings response coefficients”, *Journal of Accounting and Economics*, 15(2), pp. 143-171.
- Kothari, S., Mizik, N. and Roychowdhury, S. (2012). “*Managing for the moment: The role of real activity versus accruals earnings management in SEO valuation*”. Working paper, available at <https://olin.wustl.edu/docs/Faculty/ROYCHOWDHURY.pdf>.
- Kuo, J., Ning, L. and Song, X. (2014). “The Real and Accrual-based Earnings Management Behaviors: Evidence from the Split Share Structure Reform in China”, *International Journal of Accounting*, 49(1), pp. 101-136.
- Leggett, D.M., Parsons, L.M. and Reitenga, A.L. (2016). “Real Earnings Management and Subsequent Operating Performance”. *Journal of Operations Management*, 15(4), pp. 7-32.
- Mizik, N. (2010). “The theory and practice of myopic management”. *Journal of Marketing Research*, 47, pp. 594–611.
- Reguera-Alvarado, N., Blanco-Oliver, A., Martín-Ruiz, D. (2016). "Testing the predictive power of PLS through cross-validation in banking", *Journal of Business Research*, 69(10), pp. 4685–4693.
- Roychowdhury, S. (2006). “Earnings management through real activities manipulation”, *Journal of Accounting and Economics*, 42(3), pp. 335-370.
- Tabassum, N., Kaleem, A. and Nazir, M. S. (2015). “Real Earnings Management and Future Performance”, *Global Business Review*, 16(1), pp. 21-34.
- Talbi, D., Omri, M. A., Guesmi, K. and Ftiti, Z. (2015). “The Role of Board Characteristics in Mitigating Management Opportunism: The Case of Real Earnings Management”, *Journal of Applied Business Research*, 31(2), pp. 661-674.
- Teoh, S. H., Welch, I. and Wong, T. J. (1998). “Earnings management and the underperformance of seasoned equity offerings”, *Journal of Financial Economics*, 50(1), pp. 63-99.
- Ullah, S., Akhtar, P., Zaefarian, G. (2018). "Dealing with endogeneity bias: the generalized method of moments (GMM) for panel data". *Industrial Marketing Management*, 71, pp. 69-78.
- Vorst, P. (2015). “Real earnings management and long-term operating performance: The role of reversals in discretionary investment cuts”. *The Accounting Review*, 91(4), pp. 1219–1256.
- Wooldridge, J. M. (2016). "Introductory Econometrics: A Modern Approach", (Sixth Edition). Toronto: Nelson Education.
- Yasser, S., & Soliman, M. (2018). “The effect of audit quality on earnings management in developing countries: The case of Egypt”. *International Research Journal of Applied Finance*, 9(4), pp. 216-231.
- Zang, A. (2012). “Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management”, *The Accounting Review*, 87(2), pp. 675-703.

- Zang, A. Y. (2007). “*Evidence on the trade-off between real manipulation and accrual manipulation*”. Working paper, available at SSRN 961293.
- Zhang, W. (2008). “*Real Activities Manipulation to Meet Analysts' Cash Flow*”. Working paper, available at SSRN 1013228.
- Zhao, Y., Chen, K. H., Zhang, Y. and Davis, M. (2012). “Takeover protection and managerial myopia: Evidence from real earnings management”, *Journal of Accounting and Public Policy*, 31(1), pp. 109-135.
- Zhu, T., Lu, M., Shan, Y. and Zhang, Y. (2015). “Accrual-based and real activity earnings management at the back door: Evidence from Chinese reverse mergers”, *Pacific-Basin Finance Journal*, 35, Part A, pp. 317-339.

**Appendix 1:**

## Variables Definitions

Variables	Definition
<b>ABCFO</b>	Abnormal cash flows from operations, measured as deviations from the predicted values from the corresponding industry-year regression.
<b>ABPROD</b>	Abnormal production costs, measured as deviations from the predicted values from the corresponding industry-year regression.
<b>ABDISXP</b>	Abnormal discretionary expenses, measured as deviations from the predicted values from the corresponding industry-year regression.
<b>REM_ALL</b>	Aggregate real earnings management proxy, the sum of the additive inverse of abnormal cash flows from operations, the additive inverse of abnormal discretionary expenses, and abnormal production costs.
<b>REM1</b>	Aggregate real earnings management proxy 1, the sum of abnormal production costs and the additive inverse of abnormal cash flows from operations.
<b>REM2</b>	Aggregate real earnings management proxy 2, the sum of the additive inverse of abnormal cash flows from operations and the additive inverse of abnormal discretionary expenses.
<b>SUSPECT</b>	Dummy variable that indicates the presence of just meeting earnings targets, it is set equal to one if (a) net income divided by total assets is between 0 and 0.01, or (b) the change in net income divided by total assets between t-1 and t is between 0 and 0.01, zero otherwise.
<b>FSIZE</b>	Firm size measured by the natural log of total assets.
<b>ROA</b>	Return on assets measured as net income divided by total assets.
<b>MKTB</b>	Market to book ratio.
<b>CFO<sub>t+1</sub></b>	Cash flows from operating activities, scaled by lagged total assets.
<b>STKRET</b>	Stock return for 12- months.
<b>ZSCORE</b>	Altman's (2005) Z score for emerging markets in year t, where Altman's Z score = $3.25 + 6.56 (\text{working capital} / \text{total assets}) + 3.26 (\text{retained earnings} / \text{total assets}) + 6.72 (\text{operating income} / \text{total assets}) + 1.05 (\text{book value of equity} / \text{total liabilities})$ .
<b>INDUS</b>	Industry type variable, which is measured by a categorical variable based on the one-digit SIC Code classification for six different industries. Consistent with Al-Shattarat et al. (2018), a company is given 1 if it relates to services, 2 for Retail trade, 3 for Wholesale trade, 4 for Manufacturing, 5 for Construction, and 6 for Mining.
<b>FOW</b>	Foreign ownership is a dummy variable scores 1 if the foreign ownership is more than 50% and 0 otherwise. This categorisation of FOW is consistent with the ASE Annual report of 2019, indicating that the total foreign investments in ASE represent roughly 50% of the total market capitalisation (ASE Annual Report, 2019).

**Table 1:**  
Sample Selection Procedure

<b>Description</b>	2010	2011	2012	2013	2014	2015	2016	2017	2018	Pooled
<b>Initial sample</b>	251	251	251	251	251	251	251	251	251	1255
<i>Excluded:</i>										
<b>Financial sector companies</b>	(108)	(108)	(108)	(108)	(108)	(108)	(108)	(108)	(108)	(108)
<b>Missing annual reports</b>	(45)	(45)	(45)	(45)	(45)	(45)	(45)	(45)	(45)	(45)
<b>Final sample</b>	98	98	98	98	98	98	98	98	98	882

**Table 2:**  
Descriptive Statistics – Panel A: The Full Sample

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>STDV</i>	<i>25%</i>	<i>75%</i>
<b>REM_ALL</b>	0.0000	0.0151	0.1696	-0.0812	0.1044
<b>REM1</b>	0.0000	0.0066	0.1362	-0.0701	0.0782
<b>REM2</b>	-0.0000	0.0071	0.1004	-0.0512	0.0627
<b>SUSPECT</b>	0.10911	0.0000	0.3121	0.0000	0.0000
<b>FSIZE</b>	16.8983	16.9263	1.3363	15.9912	17.7068
<b>ROA</b>	0.0045	0.0140	0.0852	-0.0299	0.0510
<b>MKTB</b>	1.3172	0.9900	0.9140	0.6900	1.6900
<b>CFOt+1</b>	0.0504	0.0468	0.0961	-0.0018	0.1008
<b>STKRET</b>	-0.0560	-0.0257	0.3239	-0.2439	0.0817
<b>ZSCORE</b>	9.9628	7.1241	11.0347	4.6016	10.5397

*Notes: Variables are operationally defined in Appendix 1. This table presents the descriptive statistics of the variables in the regression models used to test the ninth and tenth hypotheses. High values for the proxies of REM indicate greater degrees of real activities management. The sample consists of 882 firm-years during the period 2010-2018.*

**Table 2:**  
Descriptive Statistics – Panel B: Suspect and Non-suspect Sample Firms

<i>Variables</i>	<i>Suspect (n=189)</i>					<i>Non-suspect (n=693)</i>					<i>Mean Comparison T-Test</i>
	<i>Mean</i>	<i>Median</i>	<i>STDV</i>	<i>25%</i>	<i>75%</i>	<i>Mean</i>	<i>Median</i>	<i>STDV</i>	<i>25%</i>	<i>75%</i>	
<b>REM_ALL</b>	0.0373	0.0420	0.1303	-0.0335	0.1177	-0.0056	0.0146	0.1728	-0.0874	0.1035	15.921(0.000)***
<b>REM1</b>	0.0233	0.0143	0.1102	-0.0353	0.0778	-0.0034	0.0057	0.1378	-0.0817	0.0773	6.179(0.000)***
<b>REM2</b>	0.0211	0.0200	0.0810	-0.0333	0.0622	-0.0037	0.0057	0.1015	-0.0585	0.0606	4.946(0.000)***
<b>FSIZE</b>	17.0454	16.7753	1.3527	16.0169	17.8027	16.8791	16.9471	1.3339	15.9694	17.6171	3.145(0.002)**
<b>ROA</b>	0.0046	0.0044	0.0026	0.0028	0.0070	0.0045	0.0230	0.0906	-0.0378	0.0599	-0.594(0.552)
<b>MKTB</b>	0.9729	0.8900	0.5998	0.6100	1.0700	1.3622	1.04	0.9385	0.69	1.79	-4.764(0.000)***
<b>CFO<sub>t+1</sub></b>	0.0520	0.0528	0.0647	0.0154	0.0841	0.0502	0.0464	0.0995	-0.0043	0.1032	-0.004(0.997)
<b>STKRET</b>	-0.0381	-0.04388	0.3208	-0.2876	0.1445	-0.0584	-0.0242	0.32447	-0.2295	0.0808	2.334(0.012)**
<b>ZSCORE</b>	7.7529	5.9132	9.3975	4.0338	7.807	10.2522	7.4382	11.2045	4.6834	11.0927	-3.222(0.001)***

*Notes: Variables are operationally defined in Appendix 1. Suspect firm-years are firm-years that have (a) net income divided by total assets is between 0 and 0.01, or (b) the change in net income divided by total assets between t-1 and t is between 0 and 0.01, zero otherwise. There are 189 suspect firm-years and 693 non-suspect firm years. Two-tailed t-test (mean comparison T-Test) conducted on variables' mean for the Suspect firms versus the means of variables for non-suspect firms.*



**Table 3:**  
Real Earnings management to Achieve Zero or Previous Year's Earnings, Aggregate REM Measure

Variables	REM_ALL		
	Coefficients	t. Statistic	p-value
SUSPECT	0.033	2.02**	0.046
FSIZE	0.007	1.56	0.117
MKTB	-0.038	-3.43***	0.000
ROA	-0.628	-5.77***	0.000
YEARDUM	Inc.	Inc.	Inc.
_Cons	-0.000	-0.02	0.967
<b>Adj R-squared</b>	11.6%		

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using the Newey–West procedure. The parameter estimates are based on the following model:

$$REM\_ALL_{it} = \alpha_0 + \beta_1 SUSPECT_{it} + \beta_2 FSIZE_{it} + \beta_3 MKTB_{it} + \beta_4 ROA_{it} + \beta_5 -13YEARDUM + \varepsilon_{it} \quad (5)$$

**Table 4:**

Real Earnings Management to Achieve Zero or Previous year's Earnings, Sub-aggregate REM Measures

Variables	REM1		REM2	
	Coefficients	t. Statistic	Coefficients	t. Statistic
SUSPECT	0.042	1.39	0.021	1.72*
FSIZE	0.007	1.70*	0.001	1.87*
MKTB	-0.011	-2.99 ***	0.003	-3.55***
ROA	-0.813	-7.21***	0.056	-3.89***
YEARDUM	Inc.	Inc.	Inc.	Inc.
_Cons	0.000	0.03	0.007	0.00
<b>Adj R-squared</b>	13.91%		10.85%	

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using the Newey–West procedure. The parameter estimates are based on the following model:

$$REM1_{it} \text{ or } REM2_{it} = \alpha_0 + \beta_1 SUSPECT_{it} + \beta_2 FSIZE_{it} + \beta_3 MKTB_{it} + \beta_4 ROA_{it} + \beta_5 YEARDUM_{it} + \varepsilon_{it} \quad (5)$$

**Table 5:**  
Real Earnings Management to Achieve Zero or Previous year's Earnings, Split REM1

Variables	ABPROD		ABCFO	
	Coefficients	t. Statistic	Coefficients	t. Statistic
SUSPECT	0.038	1.92*	0.003	0.88
FSIZE	0.003	0.67	0.009	2.36**
MKTB	-0.050	-2.22**	-0.015	-3.28***
ROA	-0.312	-3.92***	-0.213	-7.72***
YEARDUM	Inc.	Inc.	Inc.	Inc.
_Cons	0.000	-0.05	0.007	0.18
<b>Adj R-squared</b>	8.66%		12.96%	

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using the Newey–West procedure. The parameter estimates are based on the following model:

$$ABPROD_{it} \text{ or } ABCFO_{it} = \alpha_0 + \beta_1 SUSPECT_{it} + \beta_2 FSIZE_{it} + \beta_3 MKTB_{it} + \beta_4 ROA_{it} + \beta_5-13 YEARDUM + \varepsilon_{it} \quad (5)$$

**Table 6:**  
The impact of REM on future performance as measured by  $CFO_{t+1}$

Variables	Exp. sign	bootstrapped standard errors	Coefficients	t. Statistic
REM_DUM	-	-0.010**	-0.270	-1.83*
REM_DUM* SUSPECT	+	0.0120***	0.221	2.99***
SUSPECT	-	-0.022***	-0.183	-2.25**
ROA	+	0.012***	3.772	4.42***
STKRET	+	0.001***	0.385	1.88*
FSIZE	+	0.014	0.036	0.77
MKTB	+	0.076	0.053	0.74
ZSCORE	+	-0.051	-0.003	-1.33
INDDUM	+/-	Inc.	Inc.	Inc.
YEARDUM	+/-	Inc.	Inc.	Inc.
_Cons		-0.008	-0.066	-0.39
Adj R-squared		18.20%	16.70%	
Observations		882	882	

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using robust standard errors correcting for firm clusters. The parameter estimates are based on the following model:

$$CFO_{t+1} = \alpha_0 + \beta_1 REM\_DUM_{it} + \beta_2 REM\_DUM_{it} * SUSPECT_{it} + \beta_3 SUSPECT_{it} + \beta_4 ROA_{it} + \beta_5 STKRET_{it} + \beta_6 FSIZE_{it} + \beta_7 MKTB_{it} + \beta_8 ZSCORE_{it} + \beta_9 - 14 INDDUM_{it} + \beta_{15-23} YEARDUM_{it} + \varepsilon_{it} \quad (6)$$

**Table 7:**Impact of REM on Future Performance as proxied by  $CFO_{t+1}$  – Sub-aggregate Measures

Variables	Exp. sign	REM1_DUM		REM2_DUM	
		Coefficients	t. Statistic	Coefficients	t. Statistic
REM_DUM	-	-0.131	-1.77*	-0.289	-2.33**
REM_DUM*SUSPECT	+	0.521	2.73***	0.377	2.71**
SUSPECT	-	-0.360	-2.33**	-0.357	-1.43
ROA	+	3.448	4.49***	3.302	5.18***
STKRET	+	0.305	1.88*	0.307	1.91*
FSIZE	+	0.052	0.66	0.053	0.59
MKTB	+	0.032	0.83	0.033	0.85
ZSCORE <sub>t</sub>	+	-0.006	-1.03	-0.004	-1.07
INDDUM	+/-	Inc.	Inc.	Inc.	Inc.
YEARDUM	+/-	Inc.	Inc.	Inc.	Inc.
_Cons		-0.066	-0.70	-0.007	-0.04
Adj R-squared		16.63%		18.93%	
Observations		882		882	

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using robust standard errors correcting for firm clusters.

$$CFO_{t+1} = \alpha_0 + \beta_1 REM\_DUM_{it} + \beta_2 REM\_DUM_{it} * SUSPECT_{it} + \beta_3 SUSPECT_{it} + \beta_4 ROA_{it} + \beta_5 STKRET_{it} + \beta_6 FSIZE_{it} + \beta_7 MKTB_{it} + \beta_8 ZSCORE_{it} + \beta_9 - 114 INDDUM_{it} + \beta_{15-23} YEARDUM_{it} + \varepsilon_{it} \quad (6)$$

**Table 8:**  
Impact of REM on  $ROA_{t+1}$  measure of future performance

Variables	REM_ALL		REM1	REM2
	Exp. sign	t. Statistic	t. Statistic	t. Statistic
REM_DUM	-	-1.77*	-2.86**	-2.13**
REM_DUM* SUSPECT	+	2.23**	2.52**	2.24**
SUSPECT	-	-1.34	-1.88*	-1.59
STKRET	+	1.69*	1.56	1.71*
FSIZE	+	2.99***	3.22***	3.12***
MKTB	+	0.26	0.21	0.29
ROE	+	6.66***	6.70***	6.37***
ZSCORE	+	2.25**	2.23**	2.03**
INDDUM	+/-	Inc.	Inc.	Inc.
YEARDUM	+/-	Inc.	Inc.	Inc.
_Cons		-1.76*	-1.67*	-1.51
Adj R-squared		32.09%	32.21%	31.66%
Observations		882	882	882

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using robust standard errors correcting for firm clusters.

$$ROA_{t+1} = \alpha_0 + \beta_1 REM\_DUM_{it} + \beta_2 REM\_DUM_{it} * SUSPECT_{it} + \beta_3 SUSPECT_{it} + \beta_4 REM_{it} + \beta_5 STKRET_{it} + \beta_6 FSIZE_{it} + \beta_7 MKTB_{it} + \beta_8 ZSCORE_{it} + \beta_9 - 14 INDDUM_{it} + \beta_{15} - 23 YEARDUM_{it} + \varepsilon_{it} \quad (7)$$

**Table 9:**  
Real Earnings Management to Achieve Zero or Previous year's Earnings

Variables	ABDISXP		
	Coefficients	t. Statistic	p-value
SUSPECT	0.013	2.88***	0.003
FSIZE	0.002	0.65	0.578
MKTB	-0.005	-2.07**	0.033
ROA	-0.003	-0.03	0.968
YEARDUM	Inc.	Inc.	Inc.
_Cons	-0.002	-0.22	0.822
Observations	882	882	882

Notes: Variables are operationally defined in Appendix 1. \*\*\*, \*\*, \* Indicate significance at 1 percent, 5 percent, and 10 percent levels, respectively. The T-tests are computed using the Newey–West procedure. The parameter estimates are based on the following model:

$$ABDISXP_{it} = \alpha_0 + \beta_1 SUSPECT_{it} + \beta_2 FSIZE_{it} + \beta_3 MKTB_{it} + \beta_4 ROA_{it} + \beta_5 -13 YEARDUM_{it} + \varepsilon_{it} \quad (8)$$

**Table 10:**  
Additional sensitivity checks

MODELS	(1)	(2)	(3)	(4)
	CFO <sub>t+1</sub> OLS	ROA <sub>t+1</sub> OLS	CFO <sub>t+1</sub> 2-Step GMM	ROA <sub>t+1</sub> 2-Step GMM
REM_DUM	-.032*** (.011)	-.036*** (.006)	-.03*** (.002)	-.005*** (.001)
REM_DUM* SUSPECT	.111*** (.034)	.065*** (.018)	-.014*** (.005)	.011*** (.002)
SUSPECT	-.049*** (.016)	-.035*** (.009)	-.008** (.003)	-.001* (.000)
ZSCORE	-.001* (.001)	-.000* (.000)	-.000* (.000)	-.000*** (.000)
FSIZE	.038 (.04)	.057** (.022)	.025 (.003)	.002*** (.001)
STKRET	.061*** (.01)	.005* (.006)	.017*** (.001)	.000 (.000)
ROA	.344*** (.057)	-	.261*** (.031)	-
ROE	-	.039*** (.011)	-	.05*** (.003)
MKTB	.034 (.007)	.003 (.004)	.013 (.001)	.001 (.000)
INDUS	.063*** (.021)	.010* (.051)	.009*** (.001)	.000 (.000)
FOW	.098* (.052)	.177*** (.029)	.004*** (.028)	.007*** (.032)
L.CFO	-	-	.927*** (.006)	-
L2.CFO	-	-	.403*** (.002)	-
L.ROA	-	-	-	1.148*** (.007)
L2.ROA	-	-	-	.114*** (.002)
_cons	.195*** (.07)	.038 (.038)	-	-
Observations	882	882	686	686
Pseudo R <sup>2</sup>	13.9	23.8	-	-
AR(1)	-	-	0.0034	0.0011
AR(2)	-	-	0.1233	0.2411
Sargan test statistics	-	-	96.501	88.705

Notes: Variables are operationally defined in Appendix 1. Standard errors are in parentheses \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$