THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Effect of Capital Structure on Real versus Accrual Earnings Management Decisions and Future Performance

Dr. Humeyra Adiguzel
Assistant Professor, Faculty of Economics and Administrative Sciences,
Bahçeşehir University, İstanbul, Turkey

Abstract:
This article investigates whether leverage affects the sequential nature of two earnings management methods and the future performance of levered firms using those methods on a sample of Turkish firms which has bank-oriented continental European financial structure. I find that both methods are alternatives for debtless firms while they are used simultaneously by indebted firms. In addition, real activities management is more informative for signaling future performance in levered firms while income-decreasing discretionary accruals are more informative for debtless firms.

Keywords: *real activities manipulation, accrual-based earnings management, leverage, future performance*
Data Availability: *Data are available from the public sources indicated in the text.*

1. Introduction

This study uses panel-estimation techniques to produce a better understanding of the nature of the relationship between debt and the choice of accrual management or real activities manipulation.

Earnings management through accruals occurs when managers use their judgment in financial reporting to choose between accounting policies to achieve specific objectives. By changing their accounting methods or estimates without changing real activities, managers can change reported earnings in financial statements. Besides using artificial earnings management through their choice of accounting method, managers can also manipulate earnings through real management. Roy Chowdhury (2006) defines real activities management as management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds. Real management can be achieved, for example, through timing of sales, timing of R&D, advertising and maintenance expenses, or timing of income recognition from disposal of long-lived assets and investments. These decisions not only affect accounting numbers, as in the case of artificial earnings management, but also have economic consequences for the firm. In contrast, real earnings management differs from artificial earnings management on the way it affects cash flows.

Previous studies that have exclusively focused on accrual management in levered firms have shown mixed evidence. Some have found a negative relation between debt and income-increasing accrual management (Chung et al. 2005; Zhong et al. 2007; Lee at al. 2007; Rodriguez-Perez/Van Hemmen 2010), while others have shown that debt is positively associated with income-increasing accruals (DeFond/Jiambalvo 1994; Sweeney 1994; Klein 2002). There are, however, only a few studies investigating the effect of debt on real activities manipulation behavior (Bartow 1993; Roy Chowdhury 2006).

Despite increasing interest in real earnings management activities, few studies (Zang 2012) to date have examined the effect of debt levels on the managers' behavior of manipulating earnings through accruals or changing their firms' underlying operations. My study extends the research on this choice between real activities manipulation and accrual management in levered firms to achieve target objectives on a sample of Turkish firms. Most studies analyze the relationship between leverage and earnings management in the USA, which is a developed common-law country, while my study contributes to the literature by presenting evidence from a developing code-law country. Turkey has an ideal setting to handle issues related to EM in levered firms due to the bank-oriented continental European financial structure (relationship-based systems) of the Turkish firms (Rajan/Zingales 2001). The majority of firms which operate in bank-oriented economies use bank financing rather than capital markets (Miguel et al. 2014). Unlike the stock market-oriented Anglo-Saxon model (arm's-length systems), in the relationship- based systems, the financier is not protected by explicit contracts and transparency and because of this, institutional relationships are matter and the market is not an important medium for directing/governing the terms of transactions. As a result, it is expected that the role of leverage on the earnings management decisions is more influential in bank-oriented financial structures rather than market oriented structures.

I start by analyzing the differences in accrual management between indebted and debtless firms. Discretionary accruals are estimated from the performance-adjusted cross-sectional variation of the modified John's model (Kothari et al. 2005). My results show that debt is positively associated with the absolute value of accruals while the direction of the accruals varies based on the aim of the manager when managing earnings. To distinguish between the effect of debt levels on income-increasing and income-decreasing accruals, a sample of suspect firms are used. Following previous research, firm-years just meeting zero earnings or the previous year's earnings are assumed to be suspect firms that are try to increase earnings. My findings show that, for these suspect firms, leverage has a

significant positive relationship with income-increasing accruals, while for non-suspect firms leverage has significant positive relationship with income-decreasing accruals. Overall, my results suggest that levered firms manage accruals more than unlevered firms, and that the direction of the accruals changes depending on the aim of the manager.

Second, I examine the differences in real activities manipulation between indebted and debtless firms. Following previous studies, I use proxies for real activities manipulation as sales manipulation by accelerating the timing of sales, reduction of discretionary expenditures and overproduction (Roychowdhury 2006; Cohen /Zarowin 2010; Gunny 2010; Zang 2012). Using a sample of more than 1,250 firm years over the period 2007-2013,[1] I show empirically that levered firms accelerate the timing of sales and overproduce to cut prices or to decrease COGS more than unlevered firms.

Previous studies have shown evidence that the choice of accrual management or real activities manipulation methods is affected by regulations, such as SOX or IFRS (Cohen et al. 2008; Cohen /Zarowin 2010; Sellami /Fakhfakh 2013; Doukakis 2014), and the costs associated with each method (Zang 2012). Zang (2012) argues that the two earnings management methods represent direct alternatives because of their sequential nature caused by the costs and timing of each method. That is, when one of these two methods arecostlier, managers may prefer the other, while at the end of a fiscal year, managers take the chance to adjust accrual-based earnings management according to the real activities manipulation that occurred during that fiscal year. On the other hand, some studies provide evidence that managers use both earnings management strategies simultaneously during a fiscal year (Barton 2001; Pincus /Rajgopal 2002). I contribute to the literature by examining the effect of leverage on the sequencing of the two methods. I found that, whereas real activities manipulation and accrual management are alternatives for debtless firms, levered firms use both methods simultaneously.

Finally, I compare the future operating performance of levered firms using real management or accrual management. Gunny (2010) found that firms engaging in real management have relatively better subsequent performance than other firms. There are a number of other papers showing the opposite. Leggett, Parsons, and Reitenga (2010) andChapman and Steenburg (2011) report that firms that reduce discretionary spending to beat earnings benchmark exhibit long-term underperformance. Cohen and Zarowin (2010) and Mizik and Jacobson (2007) document that firms engaging in real earnings management prior to seasoned equity offerings have poorer operating performance in the future. These conflicting results may be explained by the different capital structures of the sample firms. This paper therefore contributes to the literature by comparing the future operating performance of levered firms that use real or accrual earnings management. The results indicate that manipulating earnings through the reduction of discretionary expenses improves future performance in levered firms. Income-decreasing discretionary accruals are positively correlated with future performance in debtless firms but negatively correlated with future performance in levered firms.

The remainder of the paper is organized as follows. Section 2 reviews the literature and develops testable hypotheses. Section 3 describes the sample, measurement of real activities manipulation, measurement of accrual based earnings management and reports descriptive statistics. Section 4 reports the empirical results, while section 5 provides the concluding remarks.

2. Literature and Hypothesis Development

From an *Agency Theory* perspective, the presence of debt holders constrains the opportunistic behavior of managers to manipulate earnings for their own benefits. Some studies show a negative and significant relation between debt and accruals (Chung et al. 2005; Zhong et al. 2007; Lee at al. 2007; Rodriguez-Perez /Van Hemmen 2010). This suggests that debt restricts discretionary accruals because of increased monitoring by debt holders. On the other hand, previous studies about the effects of debt or debt covenant violations on the level of earnings management through accruals concluded that managers of the firms that get closer to the covenants tend to make income-increasing accruals (DeFond /Jiambalvo 1994; Sweeney 1994; Iatridis /Kadorinis 2009) while managers of firms which bind the covenants tend to make income-decreasing accruals (DeAngelo et al.1994). Covenant violations can impose heavy costs on firms and limit managers' operational freedom. Because of this, managers try to avoid being close to violations, using earnings management as a device to avoid covenant violations. This is known in the literature as the *debt-covenant hypothesis*, which asserts that managers manipulate earnings to avoid approaching debt covenants. In contrast, firms with failed covenants tend to make income-decreasing accruals to gain more concessions in contractual renegotiations.Contrary to the debt covenant hypothesis, however, managers of firms that bind covenants prefer to reduce earnings to gain concessions when engaging in contractual renegotiations with lenders, unions, government and/or management. In bank-oriented financial structures, I expect that firms are more concerned with the covenant violations and contractual renegotiations with lenders rather than the market reactions to the accrual management activities. These arguments lead to the following hypothesis:

- H_1: There is a significant positive relationship between leverage and accrual management.

Previous studies provide mixed results about the relationship between debt and the direction of accrual management because the aim of the manager when managing earnings affects the direction of the accruals. If the aim is increasing income to reduce the probability of debt covenant violation or to improve the firm's bargaining power during debt negotiation, the direction of accruals will probably be income-increasing. On the other hand, if the aim for firms with failed covenants is to achieve better concessions in contractual renegotiations, direction of the accruals will probably be income-decreasing. This expectation can be expressed as the following hypothesis:

- H_2: The direction of accruals in levered firms is affected by managers' aims.

[1]In Turkey, listed companies began to use IFRS after the fiscal year of 2005. To eliminate the effects of IFRS adoption data begins from 2006.

According to Fields, Liz and Vincent (2001), the total effect of earnings management activities cannot be explained by examining accrual management alone because managers may also manipulate earnings through real activities manipulation. Gunny (2010) suggests several reasons why managers engage in real activities management rather than accrual management. First, accrual management may be constrained by previous business operations and reversals of accruals. Second, accounting choices are subject to auditors' examination whereas operating decisions are controlled by managers.

Bartov (1993) provides the evidence of real earnings management through the timing of sales of long-lived assets and investments to mitigate accounting-based restrictions on bond covenants. Bartov's (1993) findings support the debt-equity hypothesis, indicating that the income from the assets sales of high debt-equity firms significantly exceeds that of low debt-equity firms. Roy Chowdhury (2006) also provides evidence that firms with outstanding debt manipulate earnings through changing their underlying operations in an effort to boost current period earnings. However, Zang (2012) found that firms in a poor financial condition have less flexibility for real activities manipulation because, for them, deviating from normal business operations will have a high marginal cost. I expect that in bank-oriented financial structures firms are more concerned with avoiding covenant violations in the current period rather than high cost of deviating from normal business operations in the long run.These findings lead to the following hypothesis:

- H_3: There is a significant positive relationship between debt levels and real activities manipulation.

Although prior studies provide evidence about the relationship between debt and two earnings management methods, the effect of leverage on the choice of managers between two methods is not clear. The only evidence, provided by Zang (2012), indicates that levered firms prefer to implement accrual-based earnings management because the cost of real activities manipulation is too high for them. The primary objective of levered firms is to improve operations, so deviating from normal business strategies for reporting concerns will be relatively costly. Hence, I predict the following:

- H_4: Leverage affects the choice of managers for discretionary accruals or real earnings management activities.

The information signaling hypothesis states that managers use earnings smoothing to signal their private information about the firm's future prospects (Hunt et al. 2000). Thus, income smoothing through efficient communication of private information about the firm's future expectations can lead to more informative stock prices. From their examination of the relationship between earnings management and the informativeness of earnings, Tucker and Zarowin (2006) found that stock prices impound more information about future earnings when firms smooth their reported income. Chaney and Lewis (1998) argue that one benefit of earnings management is that the market is better able to assess the information content of earnings for firms with smoother earnings. Cohen et al. (2005) found supporting evidence that the volatility of stock returns around earnings announcements is positively associated with earnings management – that is, earnings management is informative. More informative earnings will enable the firm to perform better in the future because of improved relationships with investors, customers and creditors.

Although smooth earnings are better for assessing information about a firm's future prospects, too much earnings management reduces the ability of investors to interpret current net income. Managers may also use earnings management opportunistically for their own advantage as there are many incentives to do this. For example, the bonus plan hypothesis states that, if managers' bonuses depend on current reported earnings, they try to increase their current bonus by reporting as high a current income as possible (Healy 1985; Holthausen et al. 1995; Guidry et al. 1999; Gaver et al. 1995; Shuto 2007; Bergstresser /Philippon 2006; Iatridis /Kadorinis 2009). Such opportunistic behavior will reduce future performance because of damaged relationships with investors, customers and creditors. Based on these arguments, I expect that there is an association between accrual management and future performance of levered firms. However, direction of the accruals will determine the sign of the relationship. Unlevered firms engaging in income decreasing discretionary accrual management will have relatively better subsequent performance than levered firms, because of the reversal of accruals in the future periods, and vice versa. I expect that income decreasing discretionary accruals will cause covenant violations in the current period, hence, will affect negatively the future performance of the levered firms although accruals reverse in future periods. These arguments lead to the following hypotheses:

- H_5= There is an association between accrual management and future performance of levered firms.
- → H_{5a}= There is a significant negative relationship between income decreasing discretionary accruals and future performance of levered firms.
- → H_{5b}= There is a significant positive relationship between income increasing discretionary accruals and future performance of levered firms.

Prior studies provide mixed evidence about the relationship between real activities management and future performance of the firms. Gunny (2010) states that firms engaging in real management have relatively better subsequent performance than other firms, while a number of other papers showing the opposite (Leggett et al. 2010; Cohen and Zarowin, 2010; Chapman and Steenburg, 2011). From the previous findings, I state that there is an association between real activities management and future performance. However, I expect that for the levered firms, effects of real earnings management to the future performance depends to the cash flow effect of the real earnings management method. In bank-oriented financial structures most of the financing obtained from the banks and banks generally more concerned with cash flows of the firms rather than net income of the period when extending credit. Hence, I expect that credibility of a levered firm will affect future performance positively. If real earnings management method increases cash flow of the current period, this will have a positive effect to the future performance of the levered firm and vice versa. These arguments lead to the following hypotheses:

- H_6= There is an association between real activities management and future performance of levered firms.
- → H_{6a}= There is a significant positive relationship between real activities management methods which increases cash flow from operations of the current period and future performance of levered firms.

→ H_{6b}= There is a significant negative relationship between real activities management methods which decreases cash flow from operations of the current period and future performance of levered firms.

3. Empirical Methodology

3.1. Data and Sample Description

The sample included all firms listed on the Istanbul Stock Exchange between 2007 and 2013 with sufficient data available at Bloomberg Database. The sample was restricted to post-2006 data to eliminate IFRS adoption after the fiscal year end 2005. Sector classifications were made according to the Global Industry Classification Standards (GICS).[2] Firms in the financial industry were excluded because this sector has different regulations made for this industry.

3.2. Measures of Real Earnings Management

Roy Chowdhury (2006) defines real activities manipulations as departures from normal operational practices. Although many real activities manipulation methods, such as overproduction to cut prices and reduction of discretionary expenses, are optimal actions in normal economic circumstances, if managers engage in these activities more than normal they are manipulating earnings through real activities.

I relied on the following proxies suggested by the previous research (Roychowdhury 2006; Cohen /Zarowin 2010; Gunny 2010) for real earnings management activities.

Reduction of discretionary expenditure: Managers may manipulate current period earnings by decreasing expenses such as R&D, Sales, General, and Administrative expenses, which are generally expensed in the same period that they are incurred. This will affect Cash Flow From Operations (CFO) in the current period positively if outlays on these expenditures are generally in the form of cash. Dechow et al, 1998; Roy Chowdhury (2006), Cohen and Zarowin (2010) model discretionary expenses as a linear function of lagged sales. Gunny (2010) incorporates controls for sticky cost behavior from the assumption that the cost increase associated with increased sales is greater than the decrease in costs associated with an equal decrease in sales. Following Gunny (2010), normal levels of discretionary expenses can be estimated using the following cross-sectional regression for each industry and year:

$SG\&A_{it} / A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1 (Sales_{it-1}/ A_{it-1}) + \beta_2(\Delta Sales_{it}/ A_{it-1}). DD + \varepsilon_{it}$ (1)

SG&A= sales, general and administrative expenses (includes R&D expense)

A= total assets

Sales= total net sales

DD= indicator variable equal to 1 when total sales decrease between t-1 and t, otherwise zero

Abnormal SG&A is actual SG&A minus the normal level of SG&A calculated using estimated coefficients from the above equation. Negative values of abnormal SG&A indicate higher earnings management.

Sales manipulation by accelerating the timing of sales through price discounts or more lenient credit terms: Managers may manipulate earnings by increasing sales temporarily by offering price discounts or more lenient credit terms. Although price discounts will increase total sales revenue, there will be a decline in cash flows because of the same levels of Cost of Goods Sold (COGS) per unit. On the other hand, more lenient credit terms also increase total sales in units but result in a decrease in cash flows generated from those sales.

Following Roy Chowdhury (2006) and Cohen and Zarowin (2010), normal cash flow from operations can be expressed as a linear function of sales and change in sales in the current period. To estimate normal cash flow from operations, I ran the following cross-sectional regression for each industry and year:

$CFO_{it}/ A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(Sales_{it}/ A_{it-1}) + \beta_2 (\Delta Sales_{it}/ A_{it-1}) + \varepsilon_{it}$ (2)

CFO = cash flow from operations

A = total assets

Sales = total net sales

Abnormal CFO is actual CFO minus the normal level of CFO calculated using the estimated coefficients from the above equation. Negative values of abnormal CFO indicate higher earnings management.

Overproduction to cut prices or to decrease COGS: Managers of manufacturing firms may produce more product units than the demand for that product to decrease the fixed cost per unit. When a firm has excess capacity, producing more units will decrease the per unit fixed cost incurred to generate current capacity. If the expenditure capitalized in the inventory cost is not expensed in the same period through sales, the cash flow from operations will be lower than normal sales levels. Following Roy Chowdhury (2006), and Cohen and Zarowin (2010), production costs can be estimated as the sum of the COGS and change in inventory because some production costs are expensed through sales while some are included in unsold inventory. The normal level of production costs is estimated as a linear function of sales, change in sales, and lagged change in sales:

$PROD_{it}/ A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(Sales_{it-1}/ A_{it-1}) + \beta_2(\Delta Sales_{it}/ A_{it-1}) + \beta_3(\Delta Sales_{it-1}/ A_{it-1}) + \varepsilon_{it}$ (3)

PROD = COGS plus change in inventory

A = total assets

Sales = total net sales

[2]Firms are classified as operating in Consumer Discretionary, Consumer Staples, Industrials, Energy, Information technology and Materials Industry.

Abnormal PROD is actual PROD minus the normal level of PROD, calculated using estimated coefficients from the above equation. Positive values of abnormal PROD indicate higher earnings management.

3.3. Measurement of Discretionary Accruals

In the present study, discretionary accruals are estimated from the performance-adjusted cross-sectional variation in a modified John's model (Kothari et al. 2005). For each year and for each industry group, total accruals are modeled as a function of change in revenues adjusted for the change in receivables, the level of plant, property and equipment, and Return on Asset, using the following cross-sectional OLS regression model.

$TA_{it} / A_{it-1} = \beta_0 + \alpha_i [1/A_{it-1}] + \beta_{1i} [(\Delta Sales_{it} - \Delta AR_{it}) / A_{it-1}] + \beta_{2i} [PPE_{it} / A_{it-1}] + \beta_{3i} ROA_{it\ (or\ it-1)} + \varepsilon_{it}$ (4)

TA_{it} = total accruals

$\Delta Sales_{it}$ = revenues in year t less revenues in year t-1

ΔREC_t = net receivables in year t less net receivables in year t-1

PPE_{it} = gross property, plant, and equipment in year t

ROA_{it} = return on asset in year t

A_{it-1} = lag total assets

3.4. Descriptive Statistics

Table 1 reports the estimation results for the measures of real earnings management and accrual management. Equations are estimated cross-sectionally for every industry-year with more than 9 firms over the period 2007-2013.

	Mean	STDEV	Median	Minimum	Maximum
Model A: Coefficient estimates of normal level of SG&A expense					
Intercept	0.082776	0.063603	0.067792	-0.02412	0.198776
$1/A_{it-1}$	687.2592	1977.09	534.389	-3535	7759.164
$Sales_{it-1}/ A_{it-1}$	0.067552	0.059151	0.071121	-0.03978	0.188267
$(\Delta Sales_{it}/ A_{it-1})$. DD	0.132226	0.451741	0.13843	-1.6231	2.275997
Adj. R-squared	0.299198	0.206107	0.2822	-0.1409	0.8475
Total Industry-Years	1,645				
Model B: Coefficient estimates of normal level of Cash Flow from Operations					
Intercept	0.055709	0.098997	0.064592	-0.22671	0.351259
$1/A_{it-1}$	-893.829	2541.45	-1007.94	-4813.59	6302
$Sales_{it}/ A_{it-1}$	0.025071	0.099414	0.015791	-0.27324	0.39819
$\Delta Sales_{it}/ A_{it-1}$	-0.01957	0.459644	0.008332	-2.09741	1.552219
Adj. R-squared	0.176593	0.247983	0.1191	-0.3271	0.8008
Total Industry-Years	1,640				
Model C: Coefficient estimates of normal level of Production costs					
Intercept	-0.11539	0.085572	-0.1087	-0.27064	0.061558
$1/A_{it-1}$	-2663.63	15959.03	439.5	-91333.7	4888
$Sales_{it}/ A_{it-1}$	0.927345	0.085561	0.923621	0.78169	1.127192
$\Delta Sales_{it}/ A_{it-1}$	-0.12638	0.362955	-0.0262	-1.33672	0.276912
$\Delta Sales_{it-1}/ A_{it-1}$	-0.03253	0.235131	-0.04898	-0.94621	0.515134
Adj. R-squared	0.942464	0.053935	0.9653	0.8054	0.9978
Total Industry-Years	1,393				
Model D: Coefficient estimates of the accrual model of Kothari et al. (2005)					
Intercept	0.000863	-0.00643	-0.18519	0.275755	0.090331
$1/A_{it-1}$	658.709	624.5405	-6759.9	10374.74	2561.434
$(\Delta Sales_{it} - \Delta AR_{it})/A_{it-1}$	0.07987	-0.00235	-0.57387	3.380555	0.561913
PPE_{it}/A_{it-1}	-0.09898	-0.07137	-0.83139	0.302305	0.214388
ROA	0.34805	0.348468	-2.36949	2.325936	0.695333
Adj. R-squared	0.260645	0.21745	-0.2902	0.8814	0.233684
Total Industry-Years	1,512				

Notes:
The following regressions are estimated cross-sectionally for every industry-year, with more than 9 firms over the period from 2007 to 2013 for CFO, SG&A, and TA; 2008 to 2013 for PROD[3].

[3]Abnormal production residuals are estimated from the following regression: $PROD_{it}/ A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(Sales_{it-1}/ A_{it-1}) + \beta_2(\Delta Sales_{it}/ A_{it-1}) + \beta_3(\Delta Sales_{it-1}/ A_{it-1}) + \varepsilon_{it}$. To calculate $(\Delta Sales_{it-1})$ data for 2007, I needed sales data for 2005. In Turkey, listed companies began to use IFRS after 2005 fiscal year. To eliminate the effects of IFRS adoption, data was included from 2006 onwards. Thus, *RM_{PROD} data begins from 2008.*

$SG\&A_{it} / A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1 (Sales_{it-1}/ A_{it-1}) + \beta_2(\Delta Sales_{it}/ A_{it-1}).\ DD + \varepsilon_{it}$ (1)

$CFO_{it}/ A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(Sales_{it}/ A_{it-1}) + \beta_2 (\Delta Sales_{it}/ A_{it-1}) + \varepsilon_{it}$ (2)

$PROD_{it}/ A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \beta_1(Sales_{it-1}/ A_{it-1}) + \beta_2(\Delta Sales_{it}/ A_{it-1}) + \beta_3(\Delta Sales_{it-1}/ A_{it-1}) + \varepsilon_{it}$ (3)

$TA_{it} / A_{it-1} = \beta_0 + \alpha_i [1/A_{it-1}] + \beta_{1i} [(\Delta Sales_{it} - \Delta AR_{it}) / A_{it-1}] + \beta_{2i} [PPE_{it} / A_{it-1}] + \beta_{3i} ROA_{it\ (or\ it-1)} + \varepsilon_{it}$ (4)

Industries are classified according to the Global Industry Classification Standard (GICS). The table reports mean and median values of coefficients across industry-years. The significance of the models is not reported because themodels estimate parameters for predictive purposes rather than testing the statistical significance of the parameters.

The variables are defined as follows:

A= total assets

Sales= total net sales

DD= indicator variable equal to 1 when total sales decrease between t-1 and t, otherwise zero

AR= net account receivable

PPE= net property, plant, and equipment

ROA= net income divided by lag total asset

Table 1: Estimation results for earnings management models

The sign of the coefficients of the real earnings management models are generally as predicted by Roy Chowdhury (2006), with one exception. Roy Chowdhury (2006) found a positive coefficient for "$\Delta Sales_{it} / A_{it-1}$"in the normal level of CFO and Production models, whereas I found a negative coefficient in line with Dechow, Kothari and Watts (1998), who conclude that greater changes in sales lead to lower cash flows. Consistent Gunny (2010), SG&A does not exhibit sticky cost behavior, as the mean coefficient for ($\Delta Sales_{it}/ A_{it-1}$).DD is positive. The production cost model has the highest average adjusted R^2, 0.94, across industry years, which is consistent with the findings from the models applied by Roy Chowdhury (2006) and Gunny (2010). The CFO model has the lowest average adjusted R^2 of 0.17 across industry years.

Table 2 panel A shows descriptive statistics of the estimated residuals from the estimation models. The mean residual from the DAC and CFO models are 0.00, while mean residuals from the SG&A and PROD models are -0.001 and 0.011, respectively. Table 2, panel B reports Pearson correlations between the variables. Higher values of abnormal production costs indicate more real activities manipulation while lower values of abnormal SG&A expenses residuals and CFO residuals indicate more real activities manipulation. There is a significant negative correlation between PROD and SG&A, and PROD and CFO (-0.2963, -0.2612, respectively), and a significant positive correlation between SG&A and CFO (0.1079),as expected. Roy Chowdhury (2006) and Gunny (2010) found similar findings from U.S data. On the other hand, there is a significant negative correlation between DAC and CFO (-0.5175) and a positive correlation between DAC and PROD (0.0851), which suggests that firms use both real activities manipulation and accrual based earnings management.

Panel A: Descriptive statistics of residuals from earnings management models

	Mean	Median	Minimum	Maximum	STDEV	Skewness	Kurtosis
DAC Residuals	0.000	-0.004	-3.428	1.319	0.184	-4.28	93.06
SG&A Residuals	-0.001	-0.012	-1.060	0.571	0.105	0.63	10.51
CFO Residuals	0.000	-0.000	-1.807	4.678	0.220	6.53	143.90
PROD Residuals	0.011	0.007	-0.854	2.248	0.220	3.36	29.66

Panel B: Pearson correlations

	DAC	*SG&A*	*CFO*	*PROD*	*Leverage*	*Size*	*ROA*
DAC	1						
SG&A	-0.0367	1					
CFO	-0.5175***	0.1079***	1				
PROD	0.0851***	-0.2963***	-0.2612***	1			
Leverage	0.045	0.1482***	-0.0012	0.1596***	1		
Size	0.0097	-0.0677**	0.0059	-0.0552*	0.0332	1	
ROA	0.0193	0.0692**	0.6026***	-0.226***	-0.042	0.1306***	1

*, **, *** represent significance at 10 percent, 5 percent and 1 percent levels, respectively.

DAC, SG&A, CFO, and PROD Residuals are estimated from the models given in Table 1. The variables are defined as follows:

Leverage = Total debt divided by lag total assets

Size = log of total assets

ROA = Net income divided by lag total assets

Table 2: Descriptive Statistics

4. Results

4.1. Abnormal Accruals and Firms' Leverage

Previous research has identified the earnings benchmarks which motivate managers to manage earnings toward those benchmarks as zero earnings (avoiding losses), prior period earnings (avoiding earnings decreases) and analysts' forecasts (Burgstahler /Dichev 1997; Degeorge et al. 1999; Kasznik 1999; Matsumoto 2002; Burgstahler / Eames 2006; Roy Chowdhury 2006). To increase the power of the test, a sample of earnings management suspect firms are used, following Roy Chowdhury (2006), Gunny (2010) and Zang (2012).

In this study, suspect firms were defined as those firms that just met zero earnings to avoid losses and those firms that avoided earnings decreases. Firms that just met zero earnings ($Suspect_{meet\text{-}zero}$) are defined as firm-years with net income divided by lag total assets between 0 and 0.01. Firms that just meet zero earnings growth ($Suspect_{meet\text{-}last}$) are defined as firm-years with change in net income divided by lag total assets between 0 and 0.01.

The following model is used to test the effect of capital structure on a manager's decision to manage earnings through accruals (Hypotheses 1 and 2):

$AbsDAC_t$ *or* $RawDAC = \alpha_0 + \beta_1 Leverage_t + \beta_2 Suspect_t + \beta_3 Leverage_t * Suspect_t + \beta_4 Size_t + \beta_5 ROA_t + \varepsilon_t$ (6)

AbsDAC is the absolute value of discretionary accruals obtained from model 4; *RawDAC* is the raw values of discretionary accruals obtained from model 4.

Panel A: Suspects are firm-years just meeting zero earnings						
	RM_{CFO}	***$RM_{SG\&A}$***	***RM_{PROD}***	***RM_{total}***	***AbsDAC***	***RawDAC***
Intercept	*0.5946*	*-0.0257*	*0.0758*	*-0.9260*	*0.1612*	*0.0530*
	*(3.90)***	*(-0.83)*	*(0.44)*	*(-3.28)***	*(1.36)*	*(1.26)*
Leverage	-0.0444	0.0079	0.0363	-0.1125	0.1394	-0.0942
	(-2.93)***	(2.81)***	(3.93)***	(-7.32)***	(19.32)***	(-12.93)***
$Suspect_{meet\text{-}zero}$	0.0192	0.0202	-0.0071	-0.1160	0.0786	-0.0714
	(0.44)	(1.52)	(-0.15)	(-1.55)	(2.36)**	(-2.00)**
$Leverage_t * Suspect_t$	-0.0128	-0.0400	-0.0100	0.1411	-0.0980	0.1340
	(-0.20)	(-2.08)**	(-0.14)	(1.31)	(-2.11)**	(2.81)***
Size	-0.1092	0.0028	-0.0147	0.1901	-0.0275	0.0005
	(-3.84)***	(0.49)	(-0.46)	(3.63)***	(-1.25)	(0.07)
ROA	0.6344	0.0411	-0.0647	-0.8222	0.0982	0.0530
	(21.70)***	(4.41)***	(-2.13)**	(-16.40)***	(4.42)***	(1.26)
R^2 overall	0.2280	0.0069	0.0699	0.1369	0.2347	0.0988
Number of Observations	1485	1542	1246	1335	1467	1467
Number of Firms	278	281	265	275	270	270
Panel B: Suspects are firm-years just meeting last year earnings						
	RM_{CFO}	*$RM_{SG\&A}$*	*RM_{PROD}*	*RM_{total}*	*AbsDAC*	*RawDAC*
Intercept	*0.5935*	*-0.0245*	*0.0815*	*-0.9092*	*0.1271*	*0.0521*
	*(3.90)***	*(-0.79)*	*(0.47)*	*(-3.20)***	*(3.73)***	*(1.18)*
Leverage	-0.0456	0.0073	0.0362	-0.1108	0.1163	-0.0953
	(-3.02)***	(2.61)***	(3.92)***	(-7.21)***	(20.57)***	(-13.01)***
$Suspect_{meet\text{-}last}$	-0.0184	-0.0078	-0.0320	-0.0030	-0.0333	-0.0832
	(-0.48)	(-0.64)	(-0.72)	(-0.04)	(-1.29)	(-2.48)**
$Leverage_t * Suspect_t$	0.0016	0.0161	0.0393	0.0351	0.0532	0.1425
	(0.03)	(0.87)	(0.58)	(0.34)	(1.36)	(2.80)***
Size	-0.1085	0.0025	-0.0158	0.1863	-0.0182	0.0011
	(-3.81)***	(0.44)	(-0.49)	(3.54)***	(-2.91)	(0.14)
ROA	0.6349	0.0410	-0.0645	-0.8222	0.0625	0.0287
	(21.72)***	(4.40)***	(-2.13)**	(-16.39)***	(3.19)***	(1.13)
R^2 overall	0.2285	0.0071	0.0686	0.1399	0.2367	0.0967
Number of Observations	1485	1542	1246	1335	1467	1467
Number of Firms	278	281	265	275	270	270

*, ** and *** represent statistical significance at 10 percent, 5 percent, and 1 percent levels, respectively. Samples for RM_{CFO}, $RM_{SG\&A}$, and *AbsDAC* consist of firm-years from 2007 to 2013, while samples for RM_{PROD} and RM_{total} consist of firm-years from 2008 to 2013.[4]. The following regression was estimated:

RM_t or *AbsDAC or RawDAC* $= \alpha_0 + \beta_1 Leverage_t + \beta_2 Suspect_t + \beta_3 Leverage_t * Suspect_t + \beta_4 Size_t + \beta_5 ROA_t + \varepsilon_t$ (6)

RM= abnormal *CFO* (RM_{CFO}), abnormal *SG&A* ($RM_{SG\&A}$), abnormal *PROD* (RM_{PROD}), which are the residuals obtained *from* models

[4] See footnote 3.

1-3, and RM_{total} is the sum of the three residuals. When calculating RM_{total},both *SG&A* and *CFO* were multiplied by (-1) so that higher values show real management.
AbsDAC= Absolute value of discretionary accruals obtained from model 4
RawDAC= Raw value of discretionary accruals obtained from model 4
Leverage= Total liabilities divided by lag total assets
$Suspect_{meet\text{-}zero}$ = an indicator variable equal to one if the firm-years with net income divided by lag total assets fall between 0 and 0.01, otherwise zero.
$Suspect_{meet\text{-}last}$ = an indicator variable equal to one if the firm-years with change in net income divided by lag total assets fall between 0 and 0.01, otherwise zero.
Size= Log of total assets
ROA= Net income divided by lag total assets

Table 3: Regressions relating abnormal residuals and leverage

The last two columns of Table 3 report the estimation results for the model 6. The coefficient on *Leverage* for *AbsDAC* is significant and positive for non-suspect firms but lower for the suspect firms. This finding supports H_1 which states that there is a significant positive relationship between accruals and leverage. The coefficient on *Leverage* for the RawDAC equation is significant and negative (-0.0953) but positive for suspect firms. The coefficient for the $Leverage_t$*$Suspect_t$ interaction is significant, positive and higher than the *Leverage* coefficient of 0.1425. Results for directional discretionary accruals show that non-suspect levered firms use income-decreasing accruals whereas suspect levered firms use income-increasing discretionary accruals. These findings support H_2 which states that the direction of accruals in levered firms is affected by managers' aims.

4.2. Abnormal RM and Firms' Leverage

To test the association between the capital structure of firms and real activities manipulation (Hypothesis 3), the following equation is estimated.

$$RM_t = \alpha_0 + \beta_1 Leverage_t + \beta_2 Suspect_t + \beta_3 Leverage_t * Suspect_t + \beta_4 Size_t + \beta_5 ROA_t + \varepsilon_t \quad (5)$$

The dependent variables are measures of real activities manipulation: abnormal *CFO* (RM_{CFO}), abnormal *SG&A* ($RM_{SG\&A}$), abnormal *PROD* (RM_{PROD}) *and* RM_{total}. $RM_{total}$is the sum of the residuals from the three RM measures. Lower values of *SG&A* and *CFO,* and higher values of *PROD,* indicate real earnings management. When calculating RM_{total}, both *SG&A* and *CFO* are multiplied by -1 so that higher values show real management. *Leverage* is one of the dependent variables, measured as total liabilities divided by lag total assets. *Suspect* is an indicator variable equal to one if the firm is a suspect. The impact of leverage on the association between meeting earnings benchmarks and real activities manipulation is examined by including an interaction variable between *Leverage* and *Suspect* ($Leverage_t$*$Suspect_t$). *Size* is measured as the natural log of total assets and controls for systematic variations in real management measures related to the firm size. Finally, *ROA* is measured as net income divided by lag total assets and included to control for issues related to current firm performance.

The first four columns of Table 3 report the estimation results for model 5. Panel A shows that when suspects are firm-years just meeting zero earnings, the coefficients on *Leverage* is significant and negative for the RM_{CFO} equation for non-suspect firms and more negative for the suspect firms (while the coefficient for "$Leverage_t$* $Suspect_t$" is also negative but not significant), indicating that indebted firms manage earnings through sales manipulation. The coefficient on *Leverage* for the RM_{PROD} equation is significant and positive, while the effect of being a suspect firm is not significant. The coefficient on *Leverage* for $RM_{SG\&A}$ is significant and positive for non-suspect firms but negative for suspect firms, indicating that suspect firms manipulate discretionary expenses to meet zero earnings.

These results suggest that indebted firms use sales manipulation and overproduction as real activities manipulation methods to manage earnings independently of being a suspect firm. On the other hand, manipulating activities through cutting discretionary expenses is mostly used by indebted suspect firms. Being a suspect firm does not have that much effect on the level of real earnings management. As pointed out by Roy Chowdhury (2006) and Zang (2012), firms just meeting prior period earnings or zero earnings might not be the only firms managing earnings. The results are similar when the suspects are firm-years just meeting last year earnings.

4.3. Two Earnings Management Methods and Firms' Leverage

To test whether debt levels change the direction of the association between real activities manipulation and accrual management, the following model was used(Hypothesis 4):

$$AbsDAC_t = \alpha_0 + \beta_1 RM + \beta_2 Leverage_t + \beta_3 Leverage_t * RM_t + \beta_4 Size_t + \beta_5 ROA_t + \varepsilon_t \quad (7)$$

	RM_{CFO}	$RM_{SG\&A}$	RM_{PROD}	RM_{total}
Intercept	*0.1773* *(1.92)**	*-0.4666* *(-3.46)****	*-0.4977* *(-2.95)****	*0.1040* *(0.94)*
RM	0.0867 (3.20)***	-0.0886 (-2.11)**	-0.0464 (-0.96)	-0.0459 (-2.42)**
Lev	0.0066 (0.78)	0.0058 (0.47)	-0.0138 (-0.92)	-0.0067 (-0.68)
Lev_t* *RM*	-0.2381 (-7.23)***	0.1370 (1.30)	0.1965 (3.30)***	0.0874 (3.84)***
Size	-0.0177 (-1.03)	0.1029 (4.14)***	0.1070 (3.52)***	-0.0038 (-0.19)
ROA	0.1503 (6.77)***	0.0788 (3.03)***	0.0499 (1.73)*	0.0595 (2.56)**
R^2 overall	0.0463	0.0026	0.0012	0.0042
Number of Observations	1404	1456	1181	1130
Number of Firms	268	269	262	261

*, ** and *** represent statistical significance at 10 percent, 5 percent and 1 percent levels, respectively. Samples for RM_{CFO} and $RM_{SG\&A}$ consist of firm-years 2007-2013, while samples for RM_{PROD} and RM_{total} consist of firm-years 2008-2013.[5] The following regression was estimated:

$AbsDAC_t = \alpha_0 + \beta_1 RM + \beta_2 \text{Leverage}_t + \beta_3 \text{Leverage}_t * RM_t + \beta_4 \text{Size}_t + \beta_5 \text{ROA}_t + \varepsilon_t$

AbsDAC= Absolute value of discretionary accruals obtained from model 4

RM= abnormal *CFO* (RM_{CFO}), abnormal *SG&A* ($RM_{SG\&A}$), abnormal *PROD* (RM_{PROD}), which are the residuals obtainedfrom models 1-3, and RM_{total} is the sum of the three residuals. When calculating RM_{total}, both *SG&A* and *CFO* were multiplied by (-1) so that higher values show real management.

Lev= a dummy variable equal to one if total liabilities divided by lag total assets are higher than the industry average, otherwise zero

Size= Log of total assets

ROA= Net income divided by lag total assets

Table 4: Regressions relating leverage and choice between two earnings management methods

An interaction term (Lev_t* *RM*) is added to the model to test the hypothesis that the association between real earnings management and accrual management vary across different levels of leverage. The coefficient for RM_{CFO} is significant and positive (i.e. low levels of RM_{CFO} indicate high earnings management), indicating that there is a negative correlation between real earnings management through sales manipulation and accrual management in firms whose leverage is below industry average. However, this relationship is positive for firms whose leverage is above industry average.The coefficient for $RM_{PROD\ is}$ negative, as expected which shows that, for firms whose leverage is below industry average, there is a negative correlation, albeit non-significant, between real earnings management through overproducing to cut prices or to decrease COGS and accrual management. However, this relationship is positive for firms whose leverage is above industry average. Regarding total real management activities, there is a significant negative correlation between RM_{total} and AbsDAC, indicating a negative correlation between real activities manipulation and accrual management. Again, this relationship is positive for indebted firms (i.e. Lev_t* RM_{total} is significant and has a positive coefficient higher than RM_{total}). Contrary to the prediction, $RM_{SG\&A}$ has a significant negative correlation for debtless firms (i.e. low values of $RM_{SG\&A}$ indicate higher earnings management), indicating that real activities manipulation by decreasing discretionary expenses and accrual management are alternatives for debtless firms.

From these findings, it can be said that, for debtless firms, real activities manipulation and accrual management are alternatives because there is a negative relationship. Indebted firms, however, use both methods simultaneously. For the indebted firms, there is a positive association between real activities manipulation and accrual management. These results can be explained by the existence of extra financing needs for the next period based on budgets prepared in the last quarter of the current period. Managers of levered firms may adjust accrual management, which takes place at the fiscal year end, not only based on the real management that occurred during the fiscal year but also on the extra financing needs of the next period realized at the end of the current period.

4.4. Two Earnings Management Methods and Future Performance

To test whether there is an association between using RM and future performance of levered firms I estimated the following equation:

$\text{AdjROA}_{t+1} = \alpha_0 + \beta_1 RM_t + \beta_2 \text{Lev}_t + \beta_3 \text{Lev}_t * RM_t + \beta_4 \text{AdjROA}_t + \beta_5 \text{Size}_t + \varepsilon_t$ (8)

AdjROA equals the difference between firm-specific ROA and median ROA[6] for the same year and industry. For the industry classifications, Global Industry Classification Standards (GICS) are used.

To test whether there is an association between using accrual management and the future performance of levered firms, I estimated the following equation:

[5] See footnote 3.

[6]Gunny (2010) also measured future performance using median ROA for the same year and industry.

$AdjROA_{t+1} = \alpha_0 + \beta_1 IncDAC_t + \beta_2 DecDAC_t + \beta_3 Lev_t + \beta_4 Lev_t * IncDAC_t + \beta_5 Lev_t * DecDAC_{t+} \beta_6 AdjROA_t + \beta_7 Size_t + \varepsilon_t$ (9)

	RM_{CFO}	$RM_{SG\&A}$	RM_{PROD}	*Accruals*	
Intercept	*0.0086 (0.28)*	*0.0118(0.39)*	*0.0072 (0.04)*	-0.1474 (-4.16)***	
RM	0.0137 (0.95)	-0.0362 (- 2.93)***	0.0156 (0.94)		
IncDAC				-0.0095 (-0.48)	
DecDAC				0.0317 (1.73)*	
Lev	-0.0294 (-3.15)***	-0.0453 (-5.05)***	0.0040 (0.31)	-0.0293 (-3.19)***	
Lev_t* ***RM***	-0.0375 (-1.87)*	0.0404 (2.01)**	0.0015 (0.07)		
Lev_t* $IncDAC_t$				-0.0017 (-0.07)	
Lev_t* $DecDAC_t$				-0.0494 (-2.00)**	
AdjROA	0.0510 (1.70)*	0.0536 (1.78)*	-0.0674 (-1.79)*	0.2172 (7.64)***	
Size	0.0014 (0.25)	0.0026 (0.48)	-0.0022 (-0.07)	0.0294 (4.53)***	
R^2 overall	0.0247	0.0276	0.1652	0.1731	
Number of Observations	1256	1287	1018	1224	
Number of Firms	257	258	246	250	

*,** and *** represent statistical significance at 10 percent, 5 percent and 1 percent levels, respectively. Samples for RM_{CFO}, $RM_{SG\&A}$, and *DAC* consist of firm-years 2007-2013, while samples for RM_{PROD} and RM_{total} consist of firm-years 2008-2013[7]. The following models were estimated:

$AdjROA_{t+1} = \alpha_0 + \beta_1 RM_t + \beta_2 Lev_t + \beta_3 Lev_t * RM_t + \beta_4 AdjROA_t + \beta_5 Size_t + \varepsilon_t$ (8)

$AdjROA_{t+1} = \alpha_0 + \beta_1 IncDAC_t + \beta_2 DecDAC_t + \beta_3 Lev_t + \beta_4 Lev_t * IncDAC_t + \beta_5 Lev_t * DecDAC_{t+} \beta_6 AdjROA_t + \beta_7 Size_t + \varepsilon_t$ (9)

RM_{CFO} = an indicator variable equal to one if the residual from the CFO model is in the lowest quintile, otherwise zero

$RM_{SG\&A}$ = an indicator variable equal to one if the residual from the SG&A model is in the lowest quintile, otherwise zero

RM_{PROD} = an indicator variable equal to one if the residual from the PROD model is in the highest quintile, otherwise zero

IncDAC = an indicator variable equal to one if it is in the highest quintile of the income increasing discretionary accruals, otherwise zero

DecDAC = an indicator variable equal to one if it is in the lowest quintile of the income decreasing discretionary accruals, otherwise zero

AdjROA = the difference between firm-specific ROA and median ROA for the same year and industry (Global Industry Classification Standards)

Lev = an indicator variable equal to one if total liabilities divided by lag total assets is higher than the industry average, otherwise zero

Size = Log of total assets

ROA = Net income divided by lag total assets

Table 5: Relationship between earnings management and future performance

Table 5 presents correlations for the variables in models 8 and 9. The coefficient estimate for *AdjROA* is significant and positive for $RM_{CFO,RMSG\&A}$ *and* Accrualsbut not for RM_{PROD}, indicating that current-period industry-adjusted ROA is positively related to future-adjusted ROA. The first three columns of Table 5 report the results for the RM samples. The coefficient of Lev_t**RM*in equation 8 compares the performance of levered firms that use real management (RM) to non-RM debtless firms. The coefficient for *RM* is significant and negative for the $RM_{SG\&A}$ equation, indicating that manipulating earnings through the reduction of discretionary expenses decreases the future performance of debtless firms. However, the coefficient for Lev_t* *RM* is significant, positive and larger than the RM coefficient, indicating that manipulating earnings through the reduction of discretionary expenses increases future performance in levered firms. The last column of Table 5 reports the results for the accrual sample. The coefficient ofLev_t**DecDAC*$_t$ in equation 9compares the performance of levered firms using income-decreasing discretionary accruals to non-*DecDAC*debtless firms. The coefficient for *DecDAC* is significant and positive while Lev_t* $DecDAC_t$ is significant and negative, indicating that income-decreasing discretionary accruals are positively correlated with future performance in debtless firms but negatively correlated with future performance in levered firms. None of the results for $RM_{CFO,}$ RM_{PROD} and income decreasing accruals are significant.

The evidence presented in this section suggests that using real activities management to manipulate earnings is less opportunistic in levered firms than debtless firms, and allows levered firms to signal future performance. Income-decreasing discretionary accruals are more informative to signal future performance for debtless firms than levered firms.

5. Conclusions

This paper provides evidence for the way leverage affects real management and accrual management decisions of managers. I examined three types of real management: reduction of discretionary expenditures, sales manipulation by accelerating the timing of

[7] See footnote 3.

sales through price discounts or more lenient credit terms, and overproduction to cut prices or to decrease COGS. I used to performance-adjust cross-sectional variations of a modified John's model developed by Kothari et al. (2005) as the proxy for accrual management.

First, I examined whether accrual management is associated with leverage for firms just meeting zero earnings or last year earnings. The results indicate that leverage is positively correlated with accrual management, with non-suspect levered firms using income-decreasing accruals while suspect levered firms use income-increasing discretionary accruals. Second, I examined whether three measures of real activities management are associated with leverage for firms just meeting zero earnings or last year earnings. I found that indebted firms use sales manipulation and overproduction as real activities manipulation methods to manage earnings independently of being a suspect firm. On the other hand, manipulating activities through cutting discretionary expenses is mostly used by indebted suspect firms. I then assessed the extent to which the sequencing of the two earnings management methods is affected by leverage, finding that methods are alternatives for debtless firms but are used simultaneously by indebted firms. Finally, I examined the extent to which real management or accrual management is associated with future performance in levered firms. The results indicate that real activities management is more informative to signal future performance in levered firms while income-decreasing discretionary accruals are more informative in debtless firms.

The paper contributes to the earnings management literature by investigating the effect of leverage on the choice between accrual management and real activities management to influence the output of the accounting system. It also contributes by documenting whether real management or accrual management is associated with future performance in levered firms.

6. References

i. Barton, J. (2001): Does the use of financial derivatives affect earnings management decisions? The Accounting Review 76 (1): 1–26.
ii. Bartov, E. (1993): The timing of asset sales and earnings manipulation. The Accounting Review. 68 (4): 840-855.
iii. Bergstresser, D., / Philippon, T. (2006): CEO incentives and earnings management. Journal of Financial Economics 80 (3):511-529.
iv. Burgstahler, D. / Dichev, I. (1997): Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24(1): 99–126.
v. Burgstahler, D. / Eames, M. (2006): Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises. Journal of Business Finance & Accounting 33 (5-6): 633-652.
vi. Chaney, P.K. / Lewis, C.M. (1998): Income smoothing and underperformance in initial public offerings. Journal of Corporate Finance 4: 1-29.
vii. Chapman, C.J. / Steenburgh, T.J. (2011): A Investigation of earnings management through marketing actions. Management Science 57(1): 72-92.
viii. Cohen, D.A. / Dey, A. / Lys, T.Z. (2005): Trends in earnings management and informativeness of earnings announcements in the pre- and post-Sarbanes Oxley periods. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=658782.
ix. Cohen, D.A. / Zarowin, P. (2010): Accrual-based and real earnings management activities around seasoned equity offerings. Journal of Accounting and Economics. 50: 2–19
x. Degeorge, F./Patel, J. / Zeckhauser, R. (1999). Earnings management to exceed thresholds. Journal of Business 72 (1): 1–33.
xi. DeFond, M.L./ Jiambalvo, J. (1994): Debt covenant violation and manipulation of accruals. Journal of Accounting and Economics. 17: 145-176.
xii. Doukakis, L. (2014): The effect of mandatory IFRS adoption on real and accrual-based earnings management activities. Journal of Accounting and Public Policy 33(6): 551-572.
xiii. Fields, T./ Lyz, T./ Vincent, L. (2001): Empirical research on accounting choice. Journal of Accounting and Economics 31 (1–3): 255–308.
xiv. Gaver, J.J./ Gaver, K. M. / Austin, J. R: (1995): Additional evidence on bonus plans and income management. Journal of Accounting and Economics 19(3):3-28.
xv. Guidry, F. / Leone, A. J. / Rock, S. (1999): Earnings-based bonus plans and earnings management by business-unit managers. Journal of Accounting and Economics 26 (1-3):113-142.
xvi. Healy, P.M. (1985): The effect of bonus schemes on accounting decision. Journal of Accounting and Economics 7: 85-107.
xvii. Holthausen, R. / Larcker, D. / Sloan, R. (1995): Annual bonus schemes and the manipulation of earnings. Journal of Accounting and Economics 19: 29-74.
xviii. Hunt, A. / Moyer, S.E. / Shevlin, T. (2000): Earnings volatility, earnings management, and equity value. Working Paper. University of Washington.
xix. Iatridis, G. / Kadorinis G. (2009): Earnings management and firm financial motives: A financial investigation of UK listed firms. International Review of Financial Analysis 18 (4): 164-173.
xx. Kasznik, R. (1999): On the association between voluntary disclosure and earnings management. Journal of Accounting Research 37: 57–81.
xxi. Kothari, S.P./ Leone, A.J. / Wasley, C.E. (2005): Performance Adjusted Discretionary Accrual Measures. Journal of Accounting and Economics. Vol. 39, pp. 163-197.
xxii. Leggett, D.M. / Parsons, L.M. / Reitenga, A.L. (2010): Real earnings management and subsequent operating performance. Working Paper, University of Alabama

xxiii. Matsumoto, D. A. (2002): Management's Incentives to avoid negative earnings surprises. The Accounting Review 77(3): 483-514.

xxiv. Miguel A. Acedo-Ramírez and Francisco J. Ruiz-Cabestre (2014): Determinants of capital structure: United Kingdom versus Continental European Countries. Journal of International Financial Management& Accounting 25(3): 237-270.

xxv. Mizik, N. / Jacobson, R. (2007): Myopic marketing management: Evidence of the phenomenon and its long-term performance consequences in the SEO context. Marketing Science, 26(3): 361-379

xxvi. Pincus, M. / Rajgopal, S. (2002): The interaction between accrual management and hedging: Evidence from oil and gas firms. The Accounting Review 77 (1): 127–160.

xxvii. Rajan, R.G. / Zingales, L. (2001): Financial systems, industrial structure, and growth. Oxford Review of Economic Policy 17(4): 467–482.

xxviii. Roychowdhury, S. (2006): Earnings management through real activities manipulation. Journal of Accounting and Economics 42: 335–370.

xxix. Sellami, M./ Fakhfakh, H. (2013). Effect of the mandatory adoption of IFRS on real and accruals-based earnings management: Empirical evidence from France. International Journal of Accounting and Economics Studies 2 (1): 22-33.

xxx. Shuto, A. (2007): Executive compensation and earnings management: Empirical evidence from Japan. Journal of International Accounting, Auditing and Taxation 16(1): 1-26.

xxxi. Sweeney, A.P. (1994): Debt-covenant violations and managers' accounting responses. Journal of Accounting and Economics 17(3): 281-308.

xxxii. Tucker, J.W. / Zarowin P.A. (2006): Does income smoothing improve earnings informativeness? The Accounting Review 81(1): 251-270.

xxxiii. Zang, A.Y. (2012): Evidence on the trade-off between activities manipulation and accrual-based earnings management. The Accounting Review 87(2): 675-703.