The Impact of Financial Leverage on Accrual-Based and Real Earnings Management

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Abstract

A review of accounting literature on earnings management indicates that leverage limits earnings management due to the scrutiny of auditors and regulators. Since these studies survey the relation between leverage and accrual-based earnings management, it is predicted that leveraged firms manage their earnings through real activities manipulation. Therefore the purpose of this paper is to examine whether leverage lead to move from accrual-based earnings management to real earnings management. The statistic sample of the paper is including 118 firms listed in Tehran Stock Exchange over the period of 2008-2013. The multiple regressions analysis based on paneled data was the methodology employed for verifying the relations between leverage and two strategies of earnings management. The results indicate that managers tend to engage more in real earnings management than accrual-based earnings management once leverage is increasing. This finding highlight that focusing only on accrual-based earnings management underestimates the total earnings management activities.

Key words

Accrual-based earnings management, real earnings management, leverage

1. Introduction

Earnings management is a relevant subject in the academic literature (Kothari, 2001). One reason for this interest is the fact that the earnings is used for a variety of purposes, such as in contractual obligations (e.g. debt covenants), asset valuation and for executive remuneration and bonus plans (e.g. executive equity compensation). Therefore, accounting data provide relevant informational content and are employed by a wide range of stakeholders. For example, creditors use the numbers reported to assess aspects related to firms' financial health, credibility and viability (Ge, 2010). In turn, shareholders use earnings, among other indicators, to monitor operational performance. However, their conclusions on a given entity's performance may be erroneous if they are unable to identify and adjust for the effects of earnings management that is embedded in the financial statements. This distortion will become clear in future results, when the entity's performance does not match their estimates.

In general, earnings management affects the quality of earnings, masking the underlying economic transactions. When control mechanisms such as auditors, regulatory authorities and others are ineffective, opportunities arise for management to manipulate earnings with the objective of hitting certain targets related to reported results (Healy and Wahlen, 1999), such as meeting analysts' expectations, avoiding losses, maintaining a growth trend or "smoothing out" the levels of reported earnings (Xu, 2008).

Firms can use multiple earnings management strategies, i.e., accrual-based and real earnings management, to manage their earnings (Kothari *et al.*, 2012). Accrual-based earnings management occurs when managers choose accounting policies from a set of generally accepted policies to achieve earnings objectives. Real earnings management occurs when managers undertake actions that change the timing or structuring of operations and deviate from normal business practices, such as manipulating sales, reducing discretionary expenditures, and overproducing inventory to decrease the costs of goods sold, with the primary objective of meeting or beating certain earnings thresholds (Roychowdhury, 2006). Unlike accrual-based earnings management, it has direct cash flow consequences, which may also have a detrimental economic impact on a firm's long-term value (Gunny, 2010). On the other hand, real earnings management

is more difficult to detect than accrual-based earnings management, because the real earnings management activities directly affect cash flows. In addition, real activities' manipulation is normally not under the jurisdiction of any existing auditing system and is less subject to extensive controls and external monitoring by society, including scrutiny by the media and other political parties (Kim and Sohn, 2013). According to Roychowdhury, 2006, although real earnings management (REM) might reduce a firm's value, managers were more willing to manage earnings through real activities such as practices that are less likely to draw auditor or regulatory scrutiny. However, Managers might implement REM in order to bring earnings to a target level and conceal "true" firm performance and behavior, similar to the use of AEM (Enomoto *et al*., 2015). So it is vital for stakeholders to identify REM and AEM since they affect the quality of financial reporting and accounting numbers.

One of the variables which has an important relation with EM and can help stakeholders to identify EM, is leverage. A review of literature on earnings management highlights that leverage limit EM (Jelinek, 2007). For example Jelinek, 2007, argues that 'leverage increases' reduce EM. 'Leverage increases' reduce opportunistic earnings management for some reasons: 1) leverage required debt repayment, thus reduces cash available to management for non-optimal spending (Jensen, 1986); 2) When a firm employs debt financing, it undergoes the scrutiny of lenders and is often subject to lender-induced spending restriction (Jensen, 1986). Studies such as Beatty and Weber (2003) and Dichev and Skinner (2002) indicate that firms with high leverage often engage in EM to avoid debt covenant violations. In these researches EM is measured by accruals. The results of the researches indicate once leverage is increasing, AEM is decreasing. It is predicted which firms facing high debt and leverage can engage in REM (Esadinia *et al*., 2014). Increasing leverage can be incentive for moving from AEM to REM (Zagers, 2009). Therefore the purpose of this research is to survey the impact of leverage on REM and AEM, so identify whether leverage lead to move from AEM to REM.

This research has two main contributions. First, previous researches study the effect of leverage on any of two kind of EM (REM or AEM) and also most of these studies use AEM, while we try to survey the impact of leverage on both REM and AEM simultaneously and develop the literature related to EM especially REM. Second, to study REM and AEM simultaneously help us to see the trade-off between them. On the other hand, we understand the important role of leverage in choosing of REM or AEM. Furthermore this research highlights that focusing only on accrual-based earnings management underestimates the total earnings management activities.

The remainder of this paper is structured as follows. First, we present a review of the related literature and develop hypotheses on the associations between leverage and AEM/REM. This is followed by the research method and the results. Third, we draw conclusions and indicate directions for further research.

2. Literature review and development of hypothesis

Jensen (1986) indicates that increasing financial leverage due to the pressure of debt covenants lead to reduce manager's opportunistic behaviors and make them more conservatism.

Bruns and Merchant (1990) and Graham *et al.* (2005) indicate managers tend more to manage earnings through manipulate real activities than accruals because AEM is more visible due to the scrutiny of auditors and regulators.

Beatty and Weber (2003), Dichev and Skinner (2003) and Sweeney (1994) indicate that high financial leverage potentially lead to increase AEM and other earnings increasing accounting choices. This is due to avoid debt covenant violations.

Zagers (2009) surveyed whether managers manipulate operation cash flow through REM once financial leverage is increasing. Findings showed that in the firms with increasing financial leverage, leverage lead to REM with the purpose of impacting on operation cash flow.

Kim et al (2010) surveyed the relation between debt covenant and REM. The results show that firms use REM to avoid debt covenant violations. They find once there are strict conditions in debt covenant then REM is more. Also firms use REM when they have limit power for renegotiation about debt covenant violations.

Zamri *et al.* (2013) examined the association between leverage and REM. The finding reveals that leveraged firms have lower levels of REM. This supports the view that leverage limits the REM activities, which in turn, could affect the quality of accounting earnings.

Moradi (2008) surveyed the relation between financial leverage and income smoothing in the firms accepted in TSE. The results indicate that there is a negative significant relation between financial leverage and income smoothing.

Esadinia *et al*. (2014) studied the relation between financial leverage and REM in the companies accepted in TSE. The findings show that there is a reverse significant relation between financial leverage and REM. Recently some studies such as Braam *et al.* (2013) and Enomoto *et al.* (2015) surveyed the trade-off between REM and AEM with the presence of different variables:

Braam *et al.* (2013) examined whether the trade-off between real and accrual-based management strategies differs between firms with and without political connections. Their finding that political connections play a significant role in the choice between accrual-based and real earnings management strategies suggests that focusing only on accrual-based measurements underestimates the total earnings management activities of politically connected firms.

Enomoto *et al.* (2015) examined the differences in accrual-based and real earnings management across countries from the perspective of investor protection. The results show that managers in countries with stronger investor protection tend to engage in real earnings management instead of accrual-based earnings management.

According to literature review the two hypotheses is developed as follows:

H₁: financial leverage has a significant impact on AEM.

H₂: financial leverage has a significant impact on REM.

3. Methodology of research

3.1. Data

To collect literature review we used different sources like books and websites and for required data we used Tadbir Pardaz and Rah Avard Novin softwares. The statistical population of the research is the firms listed in TSE. To test the hypotheses, our sample is constructed by the listed firms in nonfinancial sectors during the years 2008-2013 which is included 118 firms.

3.2. Measurement of variables

3.2.1. Measurement of accrual-based earnings management

We employ discretionary accruals to proxy for accrual-based earnings management. Accruals are including discretionary accruals and non-discretionary accruals. Non-discretionary accruals are limited by regulations, organizations and other external factors while discretionary accruals can be manipulate by management, so discretionary accruals are employed as an indicator in detecting EM in accounting studies. In this research we used Jones adjusted model (1991) as following:

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{TA_{i,t-1}}\right) + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}$$

(1)

Where:

$TAC_{i,t}$: the total accruals of firm i in year t;

$TA_{i,t-1}$: the total assets of firm i at the end of year t − 1;

ΔREV_{it} : change in net sales of firm i;

ΔREC_{it} : change in receivable accounts of firm i;

PPE_{it} : the net value of property, plant, and equipment of firm i at the end of year t − 1;

$\varepsilon_{i,t}$: the residual term, capturing discretionary accruals in year t, serve as the proxy for accrual-based earnings management(DA).

3.2.2. Measurement of real earnings management

Following Roychowdhury (2006), we used three proxies for real earnings management: abnormal levels of cash flow from operations (RM_CFO), abnormal levels of production costs (RM_PROD) and abnormal levels of discretionary expenses (RM_DISX). To calculate the proxies for real earnings management, consistent with prior research (Roychowdhury, 2006), for each metric, first using regression analysis, parameters were estimated that allow calculation of the normal levels of cash flows from operations, production costs, and discretionary expenses. Second and consistent with Roychowdhury (2006), the differences between the actual levels and the estimated normal levels, i.e., the residuals, were considered as the abnormal levels of cash flows from operations, production costs, and discretionary expenses(Roychowdhury, 2006).

Normal levels of cash flow from operations are expressed as a linear function of sales and the change in sales. Following Roychowdhury (2006), we estimated the following cross-sectional regression:

$$\frac{CFO_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{i,t}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \tag{2}$$

Where:
CFOit = the net cash receipts and disbursements resulting from the operations of firm i in year t;
ASSETSit − 1 = the total assets of firm i at the end of year t − 1;
SALESit = the net sales of firm i in year t; ΔSALESit = the change in net sales from yeart − 1 to t of firm i.

Abnormal CFO (RM_CFO) was measured as the estimated residual from Eq. (2). Since price discounts and more lenient credit terms will result in lower cash inflows in the current period, lower negative residuals imply unusually low levels of cash flows from operations, suggesting more sales manipulation to manage reported earnings upward.

Also following Roychowdhury (2006), the normal level of production costs was estimated using the following equation:

$$\frac{Prod_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_3 \frac{Sales_{i,t}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \alpha_2 \frac{\Delta Sales_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t} \tag{3}$$

Where: PRODit = the costs of goods sold of firm i in year t.

The abnormal production cost (RM_PROD) is the difference between the actual and normal levels of production costs and was calculated using the estimated coefficients from Eq. (3). Overproduction will result in positive residuals in Eq. (3), i.e., high values of RM_PROD. High positive values of RM_PROD indicate real activity manipulation through overproduction, resulting in a reduction of cost of goods sold.

The normal level of discretionary expenses was estimated using Eq. (4) (Roychowdhury, 2006):

$$\frac{DISEXP_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t} \tag{4}$$

Where: DISXit = discretionary expenses, computed as the sum of SG&A (selling, general, and administrative expenses) and R&D (research and development) expenses.

S&GA represents expenses not directly attributable to the production process but relate to selling, general, and administrative functions, and it includes advertising expenses. R&D expenses consist of all direct and indirect costs related to the creation and development of new processes, techniques, applications, and products with commercial possibilities.

The abnormal level of discretionary expenses (RM_DISX) was measured as the estimated residual from Eq. (4). Low negative residuals indicate that firms cut amounts of discretionary expenses to increase

reported earnings. Finally, for interpretation purposes, we report the reversed scores for the variables RM_CFO and RM_DISX, so that for all three proxies, higher residuals correspond with high levels of real activities' manipulation.

$$REM = ACFO * (-1) + ADISEXP * (-1) + AProd$$

3.2.3. Measurement for Independent Variable: Leverage

Leverage is measured based on the ratio of total liabilities to total assets.

3.2.4. Measurement of Control Variables

According to a literature review, this study includes some of the control variables: net interest expense (INTEXP); Return on Assets (ROA); firm size (SIZE); types of auditor (AUDITOR), Increase in the leverage may result in an increase in interest payment (INTEXP) which affects in lower net income (Jelinek, 2007). Jensen (1986) argued that higher interest expense is able to control opportunistic behavior. Hence, this study also controls for INTEXP. Then, ROA is included in this study since Kothari et al. (2005) found a negative association between EM and ROA. The result indicates that the lower the performance of the firm, the higher the possibility for the firm's incentive to engage in EM activity.

Next, the study controls for firm size. SIZE affects discretionary accruals (Gu *et al.*, 2005 and Aini *et al.*, 2006). However there are mixed arguments on the direction of its association. On one hand, Gu *et al.*, 2005, argued that there is a negative association between size and discretionary accruals. On the other hand, Aini *et al.*, 2006, claim that the larger the firm size, the more likely it will choose income decreasing accounting accruals to avoid political costs. Lastly, the study also controls for auditor. Iran Audit Organization (IAO) is assumed as a good brand name versus other audit firms. So in this research, auditor variable is 1 if the auditor is the IAO, and 0 if otherwise.

3.3. Regression models

To test the hypotheses on the relationship between the two types of earnings management and financial leverage, we constructed the following regression models:

$$AEM_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 INTEXP_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 SIZE_{i,t} + \beta_5 AUDITOR_{i,t} + \varepsilon_{it}$$

$$REM_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 INTEXP_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 SIZE_{i,t} + \beta_5 AUDITOR_{i,t} + \varepsilon_{it}$$

Which variables are explained in last session.

4. Empirical results

4.1. Descriptive statistics

Table 1 shows the descriptive statistics for the full sample of observations. The mean for leverage is 62 per cent that show the leverage among the Iranian firms in the sample is almost high.

Table 1. Descriptive statistics

Variables	Abv	N	Average	Mean	Maximum	Minimum	Std. deviation
Real earnings management	REM	708	0.002551	-0.003726	0.304397	-0.327781	0.123122
Accrual-based earnings management	AEM	708	0.000178	-0.002918	0.198266	-0.205862	0.084683
Financial leverage	LEV	708	0.621851	0.638346	0.923101	0.295225	0.140735
Interest expense	INTEXP	708	0.050545	0.047515	0.111718	0.004012	0.026997
Return on investment	ROA	708	0.113972	0.099969	0.346797	-0.053046	0.081674
Firm size	SIZE	708	13.62018	13.57779	16.17085	11.76613	0.933111

4.2. Regression results

Table 2 reports the results of the regression analyses for the hypothesized relationship between accrual-based earnings management and financial leverage according to H_1.

The *F*-statistics for the model is significance at 5 per cent level. With respect to the first hypothesis of this study, the leverage was negatively associated with AEM and significant at the 5 per cent level.

Table 2. Regression result of financial leverage and AEM

$AEM_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 INTEXP_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 SIZE_{i,t} + \beta_5 AUDITOR_{i,t} + \varepsilon_{it}$				
Dependent Variable: accrual-based earnings management				
Method: Panel Least Square				
Sample: 1387 1392				
Total panel (balanced) observations: 708				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.687755	0.148833	-4.620983	0.0000
LEV	-0.190583	0.017250	-11.04823	0.0000
INTEXP	-0.025448	0.165820	-0.153465	0.8781
ROA	0.062972	0.036279	1.735799	0.0831
SIZE	0.058276	0.009880	5.898293	0.0000
AUDITOR	-0.016934	0.006764	-2.503531	0.0126
R-squared	0.129109			
Adjusted R-squared	0.114598			
Durbin-Watson stat	1.954782			
F-statistic	19.68364			
Prob(F-statistic)	0.000000			

Table 3 reports the results of the regression analyses for the hypothesized relationship between real earnings management and financial leverage according to H_2.

The *F*-statistics for the model is significance at 5 per cent level. With respect to the second hypothesis of this study, the leverage was positively associated with REM and significant at the 5 per cent level.

Table 3. Regression result of financial leverage and REM

$REM_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 INTEXP_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 SIZE_{i,t} + \beta_5 AUDITOR_{i,t} + \varepsilon_{it}$				
Dependent Variable: Real earnings management				
Method: Panel EGLS (Cross-section weights)				
Sample: 1387 1392				
Total panel (balanced) observations: 708				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.598228	0.252874	-2.365710	0.0183
LEV	0.222149	0.081658	2.720498	0.0067
INTEXP	-0.755919	0.269237	-2.807636	0.0052
ROA	-0.088995	0.100361	-0.886750	0.3756
SIZE	0.037793	0.017624	2.144405	0.0324
AUDITOR	-0.026222	0.027644	-0.948569	0.3432
R-squared	0.165813			
Adjusted R-squared	0.129009			
Durbin-Watson stat	1.879996			
F-statistic	23.33812			
Prob(F-statistic)	0.000000			

5. Conclusions

This paper studied the impact of financial leverage on real and accrual-based earnings management in the firms listed in Tehran Stock Exchange. The purpose of this research was to identify whether financial

leverage lead to move from accrual-based earnings management to real earnings management. In this regard two hypotheses developed and 118 companies accepted in TSE analyzed. The result of testing first hypothesis showed that financial leverage has a significant negative impact on accrual-based earnings management. On the other hand once financial leverage is increasing, the management incentive is decreasing for accrual-based earnings management. Actually financial leverage increasing and then the pressure of debt covenant and strict audits for leveraged firms lead to limit manager's opportunistic behaviors, so earnings management is going to reduce. But it is predicted that firms facing leverage increasing can be involve to real earnings management. This issue was examined through second hypothesis. The result of second hypothesis indicates that financial leverage has a significant positive impact on real earnings management. It seems once leverage is increasing, although management decrease accrual-based earnings management because of strict audits and pressure of debt covenant, but knowing that detecting real earnings management is more difficult than AEM, manipulate real activities with the purpose of observing finance obligations, showing good performance of the firm, decreasing interest rate of loans following reducing the risk of investing in the firms.

The results of this research have implications for both researchers and regulators. We suggest to the researchers that focusing on accrual manipulation exclusively does not fully explain earnings management activities. For regulators, it implies that increasing scrutiny or constraints over accounting discretion does not eliminate earnings management activities altogether, but only changes managers' preference for different earnings management strategies, some of which (such as real activities manipulation) can be more costly for investors.

As there is no research in Iran so far about the trade-off between EM strategies and different variables, it can be vital to survey following items by future researches:
1) Trade-off between REM and AEM in firms with high equity cost.
2) Trade-off between REM and AEM between firms with and without political connections.
3) Trade-off between REM and AEM from the perspective of investor protection.

References

1. Aini, A., Takiah, M.I., Pourjalali, H., Teruya, J. (2006). Earnings Management in Malaysia: A Study on Effects of Accounting Choices, *Malaysian Accounting Review*, 5(1), 185-207.

2. Braam, G., Nandy, M., Weitzel, U., Lodh, S. (2013). Accrual-based and real earnings management and political connections, *The International Journal of Accounting*, http://dx.doi.org/10.1016/j.intacc.2013.10.009.

3. Cupertino, C.M., Martinez, A.L., da Costa Jr, N.C.A. (2015). Earnings Manipulations by Real Activities Management and Investors' Perceptions, *Research in International Business and Finance,* http://dx.doi.org/10.1016/j.ribaf.2015.02.015.

4. Dechow, P.M., Kothari, S.P., Watts, R.L. (1998). The Relation between Earnings and Cash Flows, *Journal of Accounting and Economics*, 25(2), 133-168.

5. Enomoto, M., Kimura, F., Yamaguchi, T. (2015). Accrual-based and real earnings management: An international comparison for investor protection, *Journal of Contemporary Accounting & Economics*, http://dx.doi.org/10.1016/j.jcae.2015.07.001.

6. Esadinia, N., Rabiee, H., Hamidian, N. (2014).To survey the relation between financial leverage and real earnings management in the firms listed in Tehran Stock Exchange, *Journal of Accounting Advances*, 5(1), 33-54.

7. Ge, W. (2010). *Essays on Real Earnings Management*, 125 p. 2010. McGill University, Montreal.

8. Gu, Z., Lee, C.W.J., Rosett, J.G. (2005). What Determines the Variability of Accounting Accruals?, *Review of Quantitative Finance and Accounting*, 24, 313–334.

9. Guny, K.A. (2005). *What Are the Consequences of Real Earnings Management*. Thesis-Graduate Division, University of California, Berkeley.

10. Hashemi, S.A., Kamali, E. (2011).The impact of gradual increasing of financial leverage, free cash flow amounts and firm growth on earnings management in the firms listed in Tehran Stock Exchange, *Journal of Accounting Knowledge*, 1(2), 95-115.

11. Healy, P.M., Wahlen, J.M. (1999). A Review of the Earnings Management Literature, *Accounting Horizons*, *13(4)*, 365-383.

12. Jelinek, K. (2007). The Effect of Leverage Increases on Earnings Management, *Journal of Business &Economic Studies*, 13(2), 24-46.

13. Jensen, M.C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economics Review*, 76(2), 323-329.

14. Kim, H., Lei, L., Pevzner, M. (2010). Debt covenant slack and real earnings management. *Working Paper*.

15. Kim, J.B., Sohn, B.C. (2013). Real earnings management and cost of capital, *Journal of Accounting and Public Policy*, 32(6), 518–543.

16. Kothari, S.P. (2001). Capital Markets Research in Accounting, *Journal of Accounting and Economics*, *31(1-3)*, 105-231.

17. Kothari, S.P., Leone, A.J., Wasley, C.E. (2005). Performance Matched Discretionary Accrual Measures, *Journal of Accounting and Economics*, 39, 163–197.

18. Kothari, S.P., Mizik, N., Roychowdhury, S. (2012). Managing for the moment: the role of real activity versus accruals earnings management in SEO valuation. *Working paper.*

19. Moradi, M. (2008).To survey the relation between financial leverage and income smoothing in the firms listed in Tehran Stock Exchange, *Financial Research*, 24(9), 99-114.

20. Odabashian, K. (2005). *The effect of the leverage on opportunistic behavior and earnings management.* Dissertation for the Degree of Doctor of Philosophy, University of Connecticut.

21. Roychowdhury, S. (2006). Earnings management through real activities manipulation*, Journal of Accounting and Economics*, 42(3), 335–370.

22. Schipper, K. (1989). Commentary on Earnings Management, *Accounting Horizons*, *3(4)*, 91-102.

23. Xu, Z. (2008).*Three Essays on Real Earnings Management,* 107 p. The University of Alabama.

24. Zagers, I. (2009). The effect of leverage increases on real earnings management. *Working Paper.*

25. Zamri, N., Abdul Rahman, R., Mohd Isa, N.S. (2013).The impact of leverage on real earnings management, *Procedia economic and finance, 7*, 86-95.

26. Zang, A.Y. (2007). *Evidence on the Tradeoff between Real Manipulation and Accrual Manipulation*, Dissertation for the Degree of Doctor of Philosophy, Duke University.

27. Zhang, R. (2006). Cash flow management, incentives, and market pricing. *Working Paper*, *Guanghua School of Management***.**