

The Impact of Leverage on Real Earnings Management: Evidences from Listed Manufacturing Companies in Colombo Stock Exchange

Wijesinghe M.R.P.¹ and Kavinda D.D.C.²

Department of Finance, University of Kelaniya, Sri Lanka¹

Department of Financial Management, University of Peradeniya, Sri Lanka²

ruwanmrp@kln.ac.lk¹, chalith407@gmail.com²

Abstract

The amount of funds a company has earned during a given period is generally reported based on appropriate and relevant accounting standards. Therefore, reported earnings helps to quantify the company's performance through earnings, nevertheless investors should consider not just earnings quantity, but also the quality of earnings, in evaluating a company's accounting earnings. The primary aim of this study is to examine the impact of Leverage on Real Earnings Management activities. The study was conducted using manufacturing companies listed in Colombo Stock Exchange with firm-quarter observations for the period of 2010 to 2015 using a panel data analysis. The results indicated that manufacturing companies are having abnormal cash flows and production cost in their operations and there is a significant positive impact of leverage on real earnings management in listed manufacturing companies in Colombo Stock Exchange, which in turn could effects the earnings quality of the companies.

Keywords: Abnormal Cash Flows from Operations, Abnormal Production Costs, Abnormal Discretionary Expenses, Real Earnings Management

Introduction

Financial statements are the primary source that provides company data for the use of stakeholders. This depends on the companies' willingness to provide additional financial and operating data voluntarily. Thus the management of a company has some autonomy in deciding what financial information will be made available and when it will be released. Economic users of these financial statements requires evaluation ability of companies in order to create cash flow, time and its creation, certainty which this evaluation is made easier through concentrate on company's financial statements and use of them in predicting

¹  <http://orcid.org/0000-0002-6708-6641>

expected cash flows and financial flexibility measurement. Furthermore financial statements reflect the accountability of the management instead of resources which are available to them. Nevertheless, accounting earnings has played a significant role in presenting relevant information with financial performance and investors' decision making. Considering the accrual concept of the accounting, directors manage considerably the time of recognition some of the expenses such as advertisements, development and research and revenues. Consequently, it allows managers to determine earnings in different times which are called earnings management.

Earning management may be defined as “reasonable and legal management decision making and reporting intended to achieve stable predictable financial results.” Earnings management is related to the importance of earnings amount for the investors' decision making. Earning management is not to be confused with illegal activities to manipulate financial statements and report results that do not reflect economic reality. These types of activities, popularity known as “cooking the books,” involve misrepresenting financial results (“What is Earnings Management,”n.d).

Real Earning Management [REM] is the deviation of ordinary business operation practices in order to make at least some stakeholders believe that financial reporting goals have been met through the normal activities of business (Roychowdhury, 2006, P.337). These departures do not necessarily contribute to firm value even though they enable managers to meet reporting goals. Despite the fact that both real earnings management and accruals earnings management can be used to alter earnings and other important metrics, the use of REM also can significantly alter a company's actual operating activities, business strategies, and cash flows. But the concepts or the practical circumstance have been change in favor of the REM activities since it appears to be less likely than accrual earnings management [AEM] to draw auditor and regulatory scrutiny, conceivably making it an attractive alternative to AEM for the management.

Reviewing the real earnings management in broad sense, Roychowdhury (2006) found that financial executives are willing to manipulate real activities to meet targets, even though the manipulation potentially reduces firm value. Real activities manipulation can reduce firm value because actions taken in the current period to increase earnings can have a negative effect on cash flows in future periods. For example, aggressive price discounts to increase sales volumes and meet some short-term earnings target can lead customers to expect such

discounts in future periods as well. This can imply lower margins on future sales. Overproduction generates excess inventories that have to be sold in subsequent periods and imposes greater inventory holding costs on the company. Discretionary expenses such as R&D costs, advertising cost are normally expensed during the same period when they are incurred. If these expenses are in the form of cash, reducing such expenses may have a positive effect to the cash inflow during the same period, while having a risk element of having lower cash flow in the coming years. However, if managers engage in these activities more extensively than is normal given economic circumstances, with the objective of meeting/beating an earnings target, they are engaging in real activities manipulation.

Taking into consideration, the importance of the earnings for the financial statements users particularly company's financial creditors and also company's leverage affect directors' tendency so as to manage earnings. The debt capital portion of a company provides funds for the functioning of the business. Then it is a responsibility of the companies to pay the returns when they are due and in a timely manner. Debt capital of the company impose debt covenants, which are restrictions in debt agreements (indentures) that aim to protect the lender (creditor, debt holder, or investor) by restricting the activities of the borrower (the company). In order to get-on with these processors managers may seek optional ways to beat these restrictions by bouncing their managerial decisions in strategically. They are being stick in between the objective of maximizing shareholder wealth and the corporate wealth. Therefore, the question is raised how the company managers manage their earnings in order to face positively for several restrictions as well as to meet the targets by the debt holders. Thus the question is the raised with regard to REM and how are the company's leverage effects on REM.

Businesses adapt their income statements to their needs based upon the industry the business is operated; service industry businesses could not use the same income statement template as manufacturing industry businesses because of the significant differences in how the businesses operate and earn money.

Manufacturing companies typically have higher amounts of revenue than other business types. Manufacturing equipment, raw materials and the number of employees required to run a manufacturing company increase the amount paid to generate this revenue, however, resulting in a smaller amount of profit in comparison to business income. Income statements for manufacturing companies are typically more robust than those for other industries since

manufacturers encounter a wider range of expenses than those companies that do not require extensive equipment, maintenance, shipping services or manpower. Consequently due to high involvement of cash inflows and outflows there is a probability for malfunctions when considering the quality of earnings of the manufacturing sector. As a result of that this study aims to analyze how the manufacturing companies listed in Colombo Stock Exchange manipulate their earnings through real activities and the impact of leverage to those real activities.

However, prior studies examined the impact of leverage on AEM and REM. It is hard to find any studies with regarded to the earnings management arena in Sri Lankan context. Therefore the objective of this study is to extends the prior studies by examine the impact of leverage on REM Activities for the manufacturing companies listed in Colombo Stock Exchange (CSE). As a secondary objective it analyses how the interest expense, return on assets (ROA) and market capitalization (MKT_CAP) effects to the REM and emphasize which variable is having more impact to the REM.

Literature Review

The focal point of this study is to identify the impact of leverage on REM. Thus it is important to look at the relationships between the leverage on REM. Since the most of the prior studies were focused on both AEM and REM, it is impossible to concern only on REM isolately. When conceder the prior studies in relation to earning management, most of the studies are base their analysis on an earnings management proxy. As cited in Ardison, Martinez, & Galdi, (2008, P.306), Authors such as Dechow et al., (2011) and Sweeney (1994) use a linear regression model based on discretionary accruals to capture managers' management. At the same vein Ardison et al., 2008, P.307) state that Dechow et al., (2003) and Phillips (2003) used discretionary accruals proxies to investigate whether firms manipulate earnings.

As cited in Zamria, Rahaman, & Isa, (2013), Graham (2005), suggested that managers prefer to manage earnings via real economic decisions rather than accounting accruals. They reported that 80 percent of survey participants in their study took economic actions such as reducing discretionary expenses on R&D, advertising and maintenance in order to meet an earnings target. According to Roychowdhury (2006), although 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.

Prior studies highlighted that leverage affect earnings management activities. Most researchers including Sweeney (1994), Dichev and Skinner (2002), Beatty and Weber (2003) have argued that leverage increases the potential for earnings management which responds to avoid debt covenant violations (as cited in Zamri et al., 2013, P.88). For example, Sweeney (1994) provides direct evidence to support a debt hypothesis that the larger a firm's debt to equity ratio, the more likely the firm's manager is to select income increasing accounting procedures. Jaggi and Lee (2002) have examined the EM incentives among managers in financial distress firms and concluded that the use of discretionary accruals is to convince their creditors that the financial distress is temporary nature and will able to recover soon (as cited in Zamria et al., 2013, P.88).

Background literature reveled that firms tend to avoid reporting losses. Burgstahler, Dichev and Skinner (1997), DeGeorge, Patel, and Zechhauser (1999) suggest that investor's would like to observe a positive earning. Therefore it is expected that firms with higher leverage ratios have higher incentives to manage their earnings since they must present their lenders good results so they will refinance firm debt (as cited in Ardison et al., 2008, P.307).

Although the previous literature has provided arguments to the positive association between EM and leverage, there is some empirical evidence with the opposite view. Odabashian (2005) examined the effect of financial leverage on doing opportunistic behaviors and earnings management on the side of the management in firms with high free cash flows. The results from the study indicated that increasing leverage led to decreasing opportunistic behaviors and decreasing earnings management in firms with high free cash flows (as cited in Takhtaei, Ojaghi & Esfandabadi, 2013, P.838). Jelinek (2007) examined the effect of financial leverage and free cash flow and firm growth on earnings management. The results indicated that firm experiencing an increase in financial leverage during a five years period gradually compared to those which had high leverage degree in the same period, has performed less earnings management (as cited in Takhtaei et al.,2013, P.838). Moradi (2007) resulted that there is a negative significance relationship between financial leverage (debt) and earnings smoothing and there is a more negative significance relationship between financial leverage and earnings smoothing in firms possessing more high free cash flow.

Prior studies of Jensen (1986), Denis and Denis (1993), Jelinek (2007), and Wasimullah (2010) suggested that leverage limits earnings management (as cited in Zamri et al., 2013, P.88). For example, in relation to the control hypothesis theory by Jensen (1986) and Jelinek's (2007) findings are consistent with the theory used as increased leverage is associated with a reduction of earnings management in low growth, high free cash flow firms. Jelinek (2007) also makes an additional contribution to the earnings management literature: that the leverage changes and leverage levels have different impacts on earnings management (as cited in Omid, 2012, P.8). According to the Jensen (1986) the reasons are, (1) leverage required debt repayment, thus reduces cash available to management for non-optimal spending; (2) when a firm employs debt financing, it undergoes the scrutiny of lenders and is often subject to lender-induced spending restriction (as cited in Zamri et al., 2013, P.87). Previous studies of Norhayati, Rahayu, and Noor (2013) with regard to REM supports the review that leverage is one of the controlling and monitoring system which limits REM. The researcher used interest expenses, return on assets, firm size, types of auditor, types of industry, and years as a control variable for leverage. Leverage is measured based on the ratio of total liabilities to total assets which is consistent with the Sweeney (1994), Dichev and Skinner (2002), Gu, Lee, and Rosett, (2005).

Considering on REM and how it functions, most of the evidence on REM centers on the opportunistic reduction of R&D expenditures to reduce reported expenses. Dechow and Skinner, and Sloan (1991) find that CEOs reduce spending on R&D toward the end of their tenure to increase short term earnings. Baber (1991) provide evidence that R&D spending is significantly less when spending jeopardizes the ability to report positive or increasing income in the current period. Converse to that, Holthausen (1995) find that managers do not cut R&D, advertising or capital expenditure to increase managerial bonuses.

The evidence suggests that managers engage in a range of activities in addition to reduction of R&D expenditures for example, providing limited time discounts to increase sales toward the end of the year and building up excess inventory to lower reported COGS (overproduction). However, there is little systematic evidence on management of real activities other than R&D reduction. In Graham (2005) survey, a larger number of respondents admit to reducing discretionary expenditures and/or capital investments than engaging in other manipulation methods. Bartov (1993) documents that firms, with negative earnings changes report higher profits from asset sales.

Thomas and Zhang (2002) provide evidence consistent with managers overproducing to decrease reported COGS, however, they cannot rule out the possibility that the result is due to adverse economic conditions. Roychowdhury (2006) develops empirical measures for REM of discretionary expense and overproduction and finds that that managers are trying to avoid reporting losses, undertake REM. Firms suspected of REM exhibit unusually low cash flow from operations, low discretionary expense and high production costs. The findings are consistent with managers offering price discounts to boost sales, myopically investing, and overproducing to decrease COGS expense (as cited in Gunny et al., 2005, P.8).

Further analyzing the literature, Roychowdhury (2006) had examined the management of sales, reduction of discretionary expenses, over production, and reduction of R&D expenses as proxies in order to identify the real activity manipulations. He found that the sample firms are manipulating real activities to avoid reporting losses.

However, prior studies of Jelinek (2007) and Zamri et al., (2013) examined the impact of leverage on AEM and the REM. This study extends prior studies by examining the impact of leverage on REM activities in the manufacturing sector of the Colombo Stock Exchange in Sri Lanka.

Methodology

The impact of leverage on earnings management has two different views. On the first side, prior studies suggested that firms with high leverage are more interested in managing their earnings (Dichev et al., 2002). On the other side, Jensen (1986) suggests that debt creation reduces managers' opportunistic behaviors. Managers use their own discretion to control the firm's cash flow; however the debt control role begins when managers have an obligation making interest and a principal payment. This implies that high leverage may restrict managers' ability to manipulate income increasing accruals. Hence, based on the above arguments, the hypothesis is developed as follows:

Research Hypothesis

In order to reply the problem of the research, the following hypotheses are put forward:

Hypothesis _{0A} : Companies are not having abnormal levels in cash flows from operations, production costs, and discretionary expenses.

- Hypothesis _{0B} : There is no high leverage within the industry.
- Hypothesis _{0C} : There is no inverse relationship between leverage and REM.
- Hypothesis _{0D} : There is no inverse relationship between interest expenses and REM.
- Hypothesis _{0E} : There is no positive relationship between ROA and REM.
- Hypothesis _{0F} : There is no inverse relationship between MKT_CAP and REM.
- Hypothesis _{0G} : Leverage is not positively associated with AEM

Sample and Data Collection

The initial sample was considered the all manufacturing companies listed in CSE. Due to the unavailability of the data the final sample covers twenty five manufacturing companies by collecting the secondary data for each firm-quarter observations using a panel data analysis for the period from 2010 to 2015. The data was collected via Bloomberg and annual reports of the manufacturing companies listed in CSE.

Measurement for Dependent and Independent Variable

Measurement for Dependent Variable: REM

Consisting with Roychowdhury (2006) this study employs three metrics to examine REM, namely abnormal cash flow from operations (RES_CFO), abnormal production costs (RES_PROD) and abnormal discretionary expenses (RES_DISEXP). The study estimates RES_CFO, RES_PROD, and RES_DISEXP as the residual from the following models, respectively (Roychowdhury, 2006).

Model for RES_CFO

$$CFO_{it} / A_{it-1} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it} / A_{it-1}] + \beta_3 [\Delta Sales_{it} / A_{it-1}] + \varepsilon_{it} \quad (1)$$

Where,

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

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

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

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

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

Model for RES_PROD

$$COGS_{it} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it}/A_{it-1}] + \varepsilon_{it} \quad (2)$$

$$\Delta INV/A_{it-1} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_3 [\Delta Sales_{it}/A_{it-1}] + \beta_4 [\Delta Sales_{it-1}/A_{it-1}] + \varepsilon_{it} \quad (3)$$

$$PROD_{it} = COGS_{it} + \Delta INV \quad (4)$$

The normal production cost is estimates as follows.

$$PROD_{it}/A_{it-1} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it}/A_{it-1}] + \beta_3 [\Delta Sales_{it}/A_{it-1}] + \beta_4 [\Delta Sales_{it-1}/A_{it-1}] + \varepsilon_{it} \quad (5)$$

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

$\Delta Sales_{it-1}$ = Sales of firm i in year $t-1$ less sales of firm i in year $t-2$; and all other variables are as previously defined.

Model for RES_DISEXP

$$DISEXP_{it}/A_{it-1} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_2 [Sales_{it-1}/A_{it-1}] + \varepsilon_{it} \quad (6)$$

Where,

$Sales_{it-1}$ = Lagged Sales.

$DISEXP_{it}$ = The sum of Research and Development (R&D) expenses and Selling, General & Administrative (SG & A) expenses of firm i in year t ; and all other variables are as previously defined.

Measurement for Independent Variable: Leverage

Leverage is measured based on the ratio of total liabilities to total assets which is consistent with Sweeney (1994), Dichev and Skinner (2002) and Gu et al., (2005).

Measurement of Control Variables

Interest expense (INTEXP), ROA, firm size increase in the leverage may result in an increase in interest payment which affects in lower net income (Jelinek, 2007). Then, ROA is included in this study since Kothari et al., (2005) found a negative association between earnings management and ROA. Next, the study controls for firm size. Market Capitalization was taken to estimate the firm size.

Estimation models

$$\text{RES_REM} = \beta_0 + \beta_1 \text{LEVERAGE} + \beta_2 \text{INTEXP} + \beta_3 \text{ROA}_{it-1} + \beta_4 \text{SIZE} + \varepsilon_{it} \quad (7)$$

Where,

RES_REM, RES_CFO, RES_PROD or RES_DISEXP (all the variables are as previously defined and this model is separately tested).

Additional Test

Accruals are calculated by using a specific model which is developed by the Jones in 1991. It is as follows,

$$\text{TA}_{it} = \text{EBX}_{it} - \text{CFO}_{it} \quad (8)$$

To capture the normal levels of the accruals within the industry following model was used,

$$\text{Accruals}_{it}/A_{it-1} = \beta_0 + \beta_1 [1/A_{it-1}] + \beta_2 [\Delta \text{Sales}_{it}/A_{it-1}] + \beta_3 [\text{PPE}_{it-1}/A_{it-1}] + \varepsilon_{it} \quad (9)$$

The test of hypothesis H_0 is based on the coefficient of LEVERAGE that is the β_1 , in the equation below. In supporting hypothesis H_0 , it is expected that β_1 is positive. The estimation model is presented as follows:

$$\text{Dis.Accruals}_{it} = \beta_0 + \beta_1 \text{LEVERAGE} + \beta_2 \text{INTEXP} + \beta_3 \text{ROA}_{it-1} + \beta_4 \text{SIZE} + \varepsilon_{it} \quad (10)$$

Analysis of Data

Further, the analysis is consisted with stationary test using Augmented Dickey-Fuller Approach, descriptive statistics tests for overall model and for each and every samples, correlation test, regression analysis for above models and the scatter diagrams.

Findings and Discussion

This section of the study exhibits the analysis done to test the above mentioned hypothesis. This study is separately regressed the variables using each estimation model where each model represents a different proxy for REM (RES_CFO, RES_PROD and RES_DISEXP). All the variables which are needed to conduct the model, gone through a stationary process in order to avoid the impact of time trend.

Then the final regression was done for the following estimated models.

$$\text{RES_CFO} = \beta_0 + \beta_1\text{LEVERAGE} + \beta_2\text{INTEXP} + \beta_3\text{ROA}_{it-1} + \beta_4\text{SIZE} \quad (11)$$

$$\text{RES_PROD} = \beta_0 + \beta_1\text{LEVERAGE} + \beta_2\text{INTEXP} + \beta_3\text{ROA}_{it-1} + \beta_4\text{SIZE} \quad (12)$$

$$\text{RES_DISEXP} = \beta_0 + \beta_1\text{LEVERAGE} + \beta_2\text{INTEXP} + \beta_3\text{ROA}_{it-1} + \beta_4\text{SIZE} \quad (13)$$

Though the previous literature of Zamri et al., (2013) provides the evidence with regard to the logarithm of assets of the firm to be taken to estimate the size, current study observed that it has a high multicollinearity with the interest expenses with the coefficient value of 0.703. Consequently market capitalization of the firms in every quarter was taken to estimate the size of the firm which hasn't any problematic behavior with other independent and control variables.

Descriptive Statistics

Table 1: overall-descriptive statistics

Variable	N	Range	Minimum	Maximum	Sum	Mean	Variance
LEVERAGE	600	7.609	0.016	7.625	302.241	0.504	0.141
INTEXP	600	394.513	0.012	394.525	21675.608	36.126	3098.624
ROA _{it-1}	600	27.067	-18.790	8.276	615.155	1.025	6.037
MKT_CAP	600	9976.379	0.010	9976.389	140744.97	234.575	453108.64
Valid N (listwise)	600						

Source: Authors

Table: 1 represents the full sample which is consisted with twenty five manufacturing companies with quarterly observations from 2009/2010 to 2014/2015. Therefore the total sample consisted with 600 firm-quarter observations. Table: 2 and Table: 3 represents the sub samples which are derived from the full sample as per the required investigations of the study. Figures under range, minimum, maximum, sum, mean and variance are presented in millions.

Table 2 :RES_CFO-Descriptive Statistics

Variable	N	Range	Minimum	Maximum	Sum	Mean	Variance
RES_CFO	355	3294.322	0.344	3294.666	97724.505	275.280	217776.86
LEVERAG E	355	1.789	0.017	1.806	178.568	0.503	0.049
INTEXP	355	380.269	0.106	380.375	15655.950	44.101	3394.033
ROA _{it-1}	355	26.433	-18.790	7.643	493.919	1.391	4.515
MKT_CAP	355	9976.34	0.015	9976.389	90986.322	256.299	570077.27

Valid N (listwise)	355						
-----------------------	-----	--	--	--	--	--	--

Source: Authors

Table 3: RES_PROD-Descriptive Statistics

Variable	N	Range	Minimum	Maximum	Sum	Mean	Variance
RES_PROD	600	1.344	0.003	1.347	148.415	0.247	0.019
LEVERAGE	600	7.609	0.016	7.625	302.241	0.504	0.141
INTEXP	600	394.513	0.012	394.525	21675.608	36.126	3098.624
ROA _{it-1}	600	27.067	-18.790	8.276	615.155	1.025	6.037
MKT_CAP	600	9976.379	0.010	9976.389	140744.97	234.575	453108.64
Valid N (listwise)	600						

Source: Authors

According to the Table: 2, it can be seen that abnormal cash flows were found in 355 firms quarters out of 600 firm quarters' observations of the manufacturing companies.

Analyzing the descriptive statistics of the ABN_PROD (Table: 3) results indicated that interest expenses, ROA_{it-1}, market capitalization and the leverage of the sub sample are equal to the full sample. This is due to abnormal productions levels were found in each and every firm-quarter. The leverage levels of the manufacturing companies are higher with a mean value of 0.504 [with a rate greater than 50%].

Range, Maximum, minimum values, sum, mean and variance can be identified separately for each variables in millions for RES_CFO and RES_PROD.

Regression Analysis

Model parameters to calculate the normal levels in the industry and the regressions tables are specified in Table: 4 as follows.

Table 4 :Model Parameters

Variables	CFO _{it} /A _{it-1}	PROD/A _{it-1}	DISEXP _{it} /A _{it-1}	ACC _{it} /A _{it-1}	ΔINV/A _{it-1}	COG/A _{it-1}
C	0.009532	-0.000433	-0.002608	0.003582	0.005054	-0.000147
(1/(A _{it-1}))	-4.068685	0.13892	1.932081	2.029328	-0.650627	-0.006151
Sales _{it} /A _{it-1}	0.027201	0.001711	-	-	-	0.7984
ΔSales _{it} /A _{it-1}	-0.021012	-0.000511	-	0.056972	0.015586	-
ΔSales _{it-1} /A _{it-1}	-	-0.000007	-	-	0.056233	-
PPE _{it-1} /A _{it-1}	-	-	-	-0.018775	-	-
S _{it-1} /1/A _{it-1}	-	-	0.136631	-	-	-

Source: Authors

Results of the Estimated Models for REM

Table 5: Overall Results

Variables	RES_CFO	Sig.1	RES_PROD	Sig.2	Dis.ACCRUALS	Sig.3
(Constant)	117.911	.033	.220	.000	.002	.638
LEVERAGE	-175.960	.062	.067	.000	.004	.605
INTEXP	4.218	.000	-0.0002	.008	-0.00013	.008
ROA _{it-1}	30.045	.002	.007	.001	0.0003	.812
MKT_CAP	.070	.011	-0.00002	.015	-0.000002	.571
R ²	.325		.063		.013	
Adjusted R ²	.312		0.055		0.006	
F Statistics	42.143		9.787		1.947	
N	355		600		600	

Source: Authors

RES_CFO

According to the analysis for RES_CFO, leverage was inversely associated with REM at the 10 percent significant level, with a coefficient of -175.960. Analysis illustrated that the overall model for RES_CFO is significant at 1 percent significant level. The F statistics for the RES_CFO model is 42.143.

RES_PROD

RES_PROD as a proxy for REM shows a positive association with leverage with a coefficient of 0.067, which is significant at 1 percent level. In the second model, the overall model is significant at 1 percent level. The F statistics for the model is 9.787.

Considering about the control variables, interest expenses and ROA_{it-1} have the coefficient values of -0.0002 and 0.007, and significant to the model at 1 percent level. There is a negative relationship with in between the market capitalization and the RES_PROD with the coefficient of -0.00002. This is significant at 5 percent level for RES_PROD.

Additional Test

The results indicated that there is a positive relationship between the leverage and the AEM with the coefficient of 0.004 though the variable is weakly significant, and the overall model also weakly significant. Results of the interest expenses as a control variable is having a

negative association with AEM with a coefficient of -0.00013 and it is significant at 1 percent level. That is the only variable which gives a significant result to the model.

Summary of Independent Variable and Control Variables

Since the explanatory power of the leverage is low when incorporate with the other controls variables in the all three models, it is necessary to conduct a regression analysis separately for the independent variable and the control variables with each and every dependent variable. The summary (Table: 6) demonstrates the relationship of independent variable and the control variables to the dependent variables (RES_CFO, RES_PROD and Accruals), when an each variable regressed separately with the dependent variable.

Table 6: Summary

Model	Variables	R²	Model	Variables	R²	Model	Variables	R²
RES_CFO			RES_PROD			Accruals		
	LEVERAGE	0.002		LEVERAGE	0.028		LEVERAGE	0.0002
	INTEXP	0.284		INTEXP	0.008		INTEXP	0.012
	ROA _{it-1}	0.031		ROA _{it-1}	0.010		ROA _{it-1}	0.00003
	MKT_CAP	0.021		MKT_CAP	0.009		MKT_CAP	0.001

Source: Authors

Discussion

According to the analysis abnormal levels are found only for the cash flow from the operating activities and for the production costs. The Analysis observed results of the sample with respect to the alternative hypothesis developed of the study; the leverage was inversely associated with REM at the 10 percent significant level is only supported by the first model (RES_CFO).

However in contrast, the second model, that is RES_PROD as a proxy for REM shows a positive association with leverage with a coefficient value of 0.067. This gives the highest explanatory power of 0.028, which is significant at 1 percent, compared to other variables (Table: 6). And this is supported by the findings of sweeney (1994) debt hypothesis, the larger a firm's debt-equity ratio, the more likely the firm's manager is to select income-increasing accounting procedures. According to the Burgstahler and Dichev (1997), DeGeorge, Patel, and Zechhauser (1999), suggest that investor's would like to observe a positive earning. Therefore it is expected that firms with higher leverage ratios have higher incentives to manage their earnings since they must present their lenders good results so they

will refinance firm debt (as cited in Ardison et al et al., 2008, P.307). Considering the sample the, results of the abnormal levels indicates that all 600 firm-quarters are having abnormal production costs, which is 100% in percentage wise. Consisting with the literature, manipulations of the productions cost can be in following forms. Over production or increasing production to report lower COGS, manipulating inventories (Roychowdhury, 2006, P.339). According to the Cook, Huston, Kinney detailed that the amount of fixed manufacturing costs that firms incur is independent of production volume because absorption costing requires that both variable and fixed manufacturing costs attach to products volume. However the amount of fixed manufacturing costs included in COGS depends on production volume because absorption costing requires that both variable and fixed manufacturing costs to be attached to products. Thus, holding sales volume constant, as production volume increases, the amount of fixed manufacturing costs assigned to COGS decreases, and accordingly the costs assigned to inventory accounts increases, consequently increasing income (P.1).

Considering about the impact of the control variables to the first model-RES_CFO, interest expenses have a significant positive relationship and prior studies found some initial evidence of the use of REM to avoid debt covenant violations. For instance, Roychowdhury (2006) finds that REM is higher for firms with debt versus firms without debt. Similarly, Bartov (1993) finds that income from asset sales is higher for firms with higher leverage, with higher leverage serving as a proxy for more restrictive debt covenants.

In the second model that is RES_PROD, interest expenses as control variable to the model has a significant negative association with the RES_PROD. The interest expenses as a cost of debt can be used to reduce the cash flow available for spending at the discretion of the managers (reducing the increase of the cost of production), thereby reducing the agency cost. Hence the results are consisted with Odabashian (2005) and Jelinek (2007). In accordance with Odabashian (2005) concluded that general increase of debts result in reduces opportunities' behavior and earnings management in companies with free cash flows and low growth. Furthermore for RES_PROD, the finding is also in line with the 'control hypotheses' for debt creation of Jensen (1986). According to the theory, debt can be used to reduce agency cost where managers may have the power to control the firm's cash flow at their own discretion. In the control hypothesis for the debt creation by Jensen (1986), addressed the benefits of the debt in motivating the managers and the organization to be efficient.

Managers of the firms who have considerable or substantial free cash flows can use them either to increase the dividend portion or to repurchase the stocks, without investing them in a low-returned projects or wasted. This enables the managers with the control over the future cash flows of the firm.

When considering about the ROA as a control variable, it has included to the model in order to capture the profitability. It shows a positive relationship for RES_CFO model. The results are in accordance with the Dyreng, Hanlon, and Maydew (2011) indicated that profitable firms with extensive tax haven subsidiaries engage in more earnings management, which is also concentrated in foreign earnings (P.3)

Considering the impact of the size to the REM proxies, first it emphasized how the size has influenced to the REM proxies. By referring to the analysis, market capitalization as a measure for size has a significant positive relationship RES_CFO and conversely there is a significant negative relationship with RES_PROD. These results are also aligned with findings of the Gu et al., (2005) and the Aman, et al., (2006), which experiential above both arguments. In the review of Gu et al., (2015) stated that size is one of the main important characteristics of a firm. Larger firms are enjoying economies of scopes, economic benefits and are more diversified with operating volatilities in different business sectors off setting each other. They are more likely to be mature and operating in a steady stage.

The additional test indicated that there is a positive relationship between the leverage and the AEM with the coefficient 0.003, which is weakly significant to the model.

Conclusion

This study investigates the impact of the leverage on REM of manufacturing companies listed in CSE, Sri Lanka. The study is motivated by recent researches that firms engage in manipulation of operating cash flows, production costs and the discretionary expenses. This study complements the existing literature on earnings management in several ways. First, this study employed empirical methods to detect real activities manipulation in large samples for the operational cash flows, production costs and the discretionary expenses by using the model developed by Roychowdhury in 2006. And it is found that companies are engaging in real activities manipulations in the manufacturing companies listed in CSE. Based on the results it can be observed that companies manipulate cash flows from the operating activities

and the production costs, but there are no evidence that companies are engaging in manipulating discretionary expenses of manufacturing companies listed in CSE, Sri Lanka.

At second it was hypothesized that the industry is not having a high leverage. The results showed that the industry is having high leveraged with a mean value which is greater than 50%. Having a debt may actually be a positive sign at some circumstance, since the companies want to increase the demand for its products and for the expansion purposes.

For the third hypothesis, using a linear regression method, study tried to model the relationship between REM and the leverage. The model is controlled by the interest expense, ROA_{it-1} , and size as control variables. In general, the extant empirical evidence is mixed with both of positive and negative association between leverage and earnings management. The results make the following main contribution to existing literature. Consist with the prior studies which highlighted that leverage effect earnings management, this study shows that there is a significant positive association between leverage and REM in Sri Lankan manufacturing sector, which is supported by the abnormal production cost [RES_PROD]. The investors would like to observe positive earnings. Thereby increasing the production cost may result in having a lower cost of goods sold. All the companies in the sample have abnormal levels in their production cost. This reduces the earnings quality of the companies. Attention has to be given for this since opportunistic earnings management could results in failures as well as for the quality of the earnings. The degree of investor protection is an important explanatory factor for the level of earnings management.

Control variables provide important aspects when determining the REM of Sri Lankan context. There is a positive association between the interest expenses and the abnormal cash flows from the operations. Interest expenses has the highest contribution to the RES_CFO, which is a proxy for REM. Companies may try to increase their earnings upwards by selling assets in order to generate cash, to pay the interest expenses, and keep attracting the debt holders to the company. This gives a positive impact to the company's cash flows. Conversely there is a negative association between the interest expenses and the abnormal production cost. The interest expenses as a cost of debt can be used to reduce the cash flow available for spending at the discretion of the managers. Thereby keep the managers on alert that they have to retain a considerable amount of money to pay the interest when they are due. Both provide positive effect to the company's cash flows. Hence interest expense as a control variable to the model has mixed arguments on REM.

ROA as a control variable has a positive association with the REM, which rejects the null hypothesis developed. ROA determines that the reported earnings are important determinant when considering about the dividends payments. Firm's managers have the incentives to manage their earnings upwards to avoid the dividends cuts. As an additional tests leverage is compared with the AEM and the results are indicated there is a weak positive association in between the leverage and the AEM in listed manufacturing companies of Sri Lanka.

These models have to be analyzed separately by taking one variable or model at a time. Otherwise the expected results may be ambiguous. The Overall results of the study indicate that drawing inferences on earnings management by analyzing only REM is not enough. It is important to check whether the timing of the REM activities. While they have to occur during the year, their intensity should increase toward the end of the year, as managers form more reliable expectations of pre-managed earnings for the year. And it will be better to detect the REM activities of the other companies in different sectors of the CSE for further studies while identifying the timing of these activities.

References

- Aman, A., Iskandar, M.T., Pourjalali, H., Teruya, J. (2006). Earnings Management in Malaysia: A Study on Effects of Accounting Choices. *Malaysian Accounting Review*, 5(1), 185-207.
- Ardison, M.M.K., Martinez, L.A., Galdi, C.F., (2008).The Effect of Leverage on Earnings Management in Brazil. *Asaa Journal - Advances in Scientific and Applied Accounting*.
- Cook, A.K., Huston, R.G., Kinney, R.M. Managing Earnings by Manipulating Inventory: The Effects of Cost Structure and Valuation Method.
- Daniel, D.N., Denis, J.D., Naveen, L. (2007). Do Firms Manage Earnings to Meet Dividend Thresholds? *Journal of Accounting and Economics*, 45 (1), 2-26.
- Dechow, M.P., Hutton, P.A., Kim, H.J., Sloan, and G.R. (2011) Detecting Earnings Management: A New Approach. *Journal of Accounting Research*, 50 (2), 275-334.
- Dichev, I.D., and Skinner, D.J. (2002). Large-Sample Evidence on the Debt Covenant Hypothesis. *Journal of Accounting Research*, 40(4), 1091-1123.

- Dyreng, S., Hanlon, M., Maydew, L., .E. (2011).Where Do Firms Manage Earnings? *Review of Accounting Studies*, 17(3), 649–687.
- Gunny, K. (2005). What Are the Consequences of Real Earnings Management?.
- Gu, Z., Lee, J.C., Rosett, G.J. (2005). What determines the variability of accounting accruals?. *Review of Quantitative Finance And Accounting*, 24 (3), 313-334.
- Investopedia. What does the "agency cost of debt" mean? Available online at: <http://www.investopedia.com/ask/answers/09/agency-cost-of-debt.asp>,accessed 23 October 2015.
- Jelinek, K. (2007). The effect of leverage increases on real earnings management. *Journal of Business & Economic Studies*, 13(2), 24-46.
- Jensen, M.C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economics Review*, 76(2), 323-329.
- Kim, H.B., Lei, L., Pervzner, M., Debt covenant slack and real earnings management.
- Kothari, S.P., Leone, A.J., Wasley, C.E. (2001). Performance Matched Discretionary Accrual Measures. *Journal of Accounting and Economics*, 39, 163–197.
- Omid, M.A. (2012).Type of Earnings Management and the Effects Debt Contracts, Future Earnings Growth Forecast and sales Growth: Evidence from Iran. *School of Doctoral Studies Journal*, 4(1), 1.
- Rashid, B., Afza, T., (2014).Opportunistic Earnings Management, Debt, and diversification. Empirical Evidence for Manufacturing Firms of Pakistan, 26(5), 2489-2494.
- Roychowdhury,S.(2006).Earnings Management through Real Activities Manipulation. *Journal of Accounting and Economics*, 42 (3), 335-370.
- Sweeney, A.P. (1994). Debt Covenant Violations and Managers' Accounting Responses. *Journal of Accounting and Economics*, 17, 281-308.
- Takhtaei, N., Ojaghi, A.M., Esfandabadi, S.H.S. (2013). Effect of Financial Leverage and Investment Diversification on Income-Increasing Earnings Management. *Middle-East Journal of Scientific Research*, 16 (6), 836-844.

“What is Earnings Management? Available online at:
http://www.swlearning.com/pdfs/chapter/0324223250_1.PDF, accessed 24 October 2015.

Zamria, N., Rahaman, A.R., Isa, M.S.N. (2013).The Impact of Leverage on Real Earnings Management. *Procedia Economics and Finance*, 7, 86-95.