IMPACT OF LEVERAGE ON REAL EARNING MANAGEMENT IN MANUFACTURING SECTOR COMPANIES IN SRI LANAKA

Nuwanka Randeniya[a]*, Gayani Jayathilake[b], Chalani Dayarathna[c], Rahul Manapurawa[d], Shashika Madushanka[e], Viraj Vijitharathna[f], Chamara Gunasingha[g], Dewmi Tennakoon[h], Amila Chathuranga[i], Tharindu Lakmal[j]

[a,b,c,d,e,f,g,h,i,j] *Department of Accounting, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Sri Lanka*

Abstract

This study examines the relationship between leverage and Real Earnings Management (REM) activities of Sri Lankan listed manufacturing companies. There are three main ways in which these Companies engage in these activities: giving price discounts to increase the sales short run, producing more than required demand to decrease production cost, reducing discretionary expenses such as R&D, and advertising. Roychowdhury (2006) employ three statistical methods to examine REM, namely abnormal cash flow from operations, abnormal production cost and abnormal discretionary expenses as the proxy for REM. Using a sample of 180 firms-year observation for the period of 2011-2016.

***Keywords*: Real activities manipulation; earnings management; leverage; abnormal cash flow; abnormal production cost; abnormal discretionary expenses**

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1) Introduction

Financial statements provide the information to shareholders and other stakeholders to make the decisions as to how vote on corporate matters. Management has some autonomy in deciding what financial information will be made available and when it will be released. Financial statements reflect the accountability of the management instead of resources which are available to them. There for the information present in financial statement has played a significant role with financial performance and investor decision making.

*Group leader
Tel.: +94717586877
Email address: nuwanka4@gmail.com

When it consider the accrual basis accounting, management and executive directors allocate considerable time to recognised the expenses such as research & development, advertising expenses, production cost and revenue. Consequently, it allows managers to determine earnings in different time periods which this kind of performance on the side of managers is called earnings management.

But previous studies, such as “Management of the loss reserve accrual and the distribution of earnings in the property-casualty insurance industry” (2003), “Debt covenant violation and manipulation of accruals” (1994), “The effect of financial leverage on real and accrual-based earnings management”(2015), have more focus on impact of leverage on Accrual Earning Management. Therefore, the main objective of this research is to extend the previous studies by considering the impact of leverage on Real Earning Management Activities.

Different scholars have defined earning management in different ways, but simply earning management is “reasonable and legal management decision making and reporting intended to achieve stable predictable financial results” Earning management impacts on the investors’ decision making process. Earning management is not illegal activity, but reported result does not reflect the economic reality. In other words, these types of activities are known as “cooking the books”, which lead to misrepresenting financial results.

Real earnings management has significantly negative impact on future operating performance. But managers are more willing to manage earnings through real activities (Roychowdhury, 2006). Real activity manipulation will badly affected to the company reputation and also it will raise a negative impact on cash flows in future period, more over its lead for the wrong decisions. 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. 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. So it’s clear that real earning management cold take place in company through sales, discretionary expenses and production cost.

Corporate strategies provide conditions that can be either favourable to earnings management or unfavourable. On the other side, earnings management can be like agency cost, because this cost is created due to information asymmetry between financial creditors and directors. Therefore, companies’ directors containing high financial leverage have a tendency to commit earnings management with the purpose of indicating companies’ performance better.

Therefore, by taking those in consideration it is clear that the importance of the earnings for the financial statements users particularly company’s financial creditors and also company’s financial leverage affect directors' tendency so as to manage earnings. Consequently, this question is raised with regard to earnings management that how is the effect of company’s financial leverage on earnings management.

2) Research Problem

The according to prior studies such as “Management of the loss reserve accrual and the distribution of earnings in the property-casualty insurance industry” (2003), “Debt covenant violation and manipulation of accruals" (1994), "The effect of financial leverage on real and accrual-based earnings management"(2015) ,it has founded that leverage affect earnings management activities. The impact of leverage on earnings management has two different views. The first view suggested that firms with high leverage are more interested in managing their earnings (Dichev and Skinner, 2002 and Beatty and Weber, 2003).

On the second view, Jensen, 1986, suggests that high leverage may restrict managers' ability to manipulate income increasing accruals. Hence, based on the above arguments the purpose of this study is to extend the prior studies by examine the effect of leverage on real earning management activities in relation to Sri Lankan context.

3) Objectives of the study

The main objective of this study is to analyze the relationship between leverage and real earnings management using abnormal cash flow from operation, abnormal production cost and abnormal discretionary expenses as a proxy for real earnings management in listed manufacturing companies in Sri Lanka.

3.1) *Specific Aims*

- Identified the sales discounts offered by companies to increase sales in order to measurer the abnormal cash flow from operation.
  To focus more on the discounts offered by the suspected companies when recognizing sales for better margin. Because this allows having low cash inflow over the life of the sales as long as suppliers to the firm does not offer matching discounts on firm inputs.

- Identified the discretionary expenses incurred by the company in order to measurer the abnormal discretionary expenses.
  To make attention more on discretionary expenses such as research and development 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 will reduce the cash outflow and 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.

- Identified the production level of the company in order to measure the abnormal production cost.
  Overproduction managers of the manufacturing firm manage earnings upward by producing more products than the expected demand. This directs to spread the fixed cost over the large number of units hence reducing the fixed cost per unit and reduce the total cost per unit, since this reduction of the fixed cost is not off-set with the increment in the marginal cost per unit. Therefore firm reports a lower cost of goods sold and reports better operating margins. To focus more on this aspect can make impact on real earning activities.

We have designed this study to determine the relation between leverage and real earnings management using abnormal cash flow from operation, abnormal production cost and abnormal discretionary expenses as a proxy for real earnings management.

Earnings management has a purposeful intervention in the external financial reporting process with the intent of obtaining some private gain (Schipper 1989). So managers engage in earning management to improve the financial picture of the company. The financial picture of the company portrayed by the financial statements has the intent to obtain some private gain.

As well as previous studies have been done based on the accrual earnings management (Wasimullah et al. 2010 and Jelinek 2007). And also few studies have been done to identify the relationship between “effects of the leverage and earnings management (Rahayu & Rahmanb 2013). As well as this kind of research has not been done within Sri Lanka previously. Hence, this study is useful to identify how the leverage affects to the REM in Sri Lankan companies. Therefore, this type of research is significant to identify how real earning management activities affect the quality of accounting earnings.

Financial statements are the primarily source that provide company data for the use of investors and analysts. Economics 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 expected cash flows and financial flexibility measurement. Accounting earnings has played a significant role in presenting relevant information with financial performance and investor decision making.

Section 4 of the studies discusses the definition of real activities manipulation and previous research findings in relation to earning management. In section 5 discusses about the data and data analyzing strategies. Section 6 discusses the implications of the evidence in this paper, as well as areas for further research.

4) Literature Review

Effect of the leverage and earnings management

In last two decades few researchers have identified the relationship between the ‘effects of the leverage and earnings management’. Most of the previous studies has done to identify the relationship between the leverage and accrual earning management. And also few studies done to identify the relationship between “effects of the leverage and earnings management”. (Norhayati, Rahayu & Noor 2013) There for the purpose of this study is to extend the prior studies by examine the effect of leverage on real earning management activities. Therefore it is it is necessary to identify some of the key concepts and the connectivity of the accrual earning management and the real earning management before concerning on the prior research literature on the relationship between leverage and real earning management and leverage and accrual earning management.

Real earnings management vs Accrual earnings management

Financial accountants are more likely to use real earnings management, rather than accrual earning management, because earnings management through operational activities has the advantage of being less likely to violate the accounting rules than does earning management through accruals manipulation, revealed by that, Foreign Ownership and Real Earnings Management, Ralf Ewert and Alfred Wagenhofer (2005). Real earnings management has raised when managers undertake actions that change the structuring of operations, such as manipulating sales, reducing discretionary expenditures like R&D and Advertising expenses, and overproducing inventory to decrease the costs of goods sold, undertaken with the primary objective of meeting certain earnings thresholds, (Roychowdhury 2006).

Kim and Sohn, (2012) had states that, even though real earning management can have direct and indirect influences on current and future cash flows of the business, real earning management activities are more difficult to avoid than accrual earning management. Those are normally less subject to external monitoring. Real earnings management can be applied throughout the year, while accruals earnings management is generally more constraint to specific times and periods.

There are some situation that both earnings management methods are used, the literature provides evidence that managers trade-off between two earnings management strategies based on their relative costs and benefits, using accrual-based and real earnings management as substitutes s (Ewert & Wagenhofer 2005).

Optmistic behaviour of the managers

According to Jensen (1986) identified two reasons to reduce opportunistic behaviour by increased leverage. Those two reasons are 1) leverage required debt payments, thus reduce 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

There are some firms with political connections so for the firm like that accrual-based earnings management strategies may be more costly than real activities manipulation if managing earnings is risky. There for Real earnings management strategies help them to make political favours and offer connected firms the relative advantage of high opacity with a lower likelihood of detection (Faccio, 2006; Faccio et al., 2006; Chaney et al., 2011). Moreover, for connected firms, the marginal benefits of the secrecy of real earnings management are likely to outweigh the marginal costs, compared with accrual-based earnings management strategies and including the opportunity costs related to the deterioration of the firm's future performance after applying real earnings management. However the focus point of this research is to identify the effect of leverage on real earnings management.

Relationship between leverage and real earnings management

Therefore it is important to look at the relationships between the leverage on real earnings management, but the most of the prior studies were focused on accrual earnings management, it is impossible to concern only on real earning management isolate when examining the prior studies. A more recent study (Graham et al 2005), suggests 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 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.

In the Malaysian context, Salleh (2009) provides similar findings. He found that a majority of survey participants who had experienced missing an earnings target preferred to make economic sacrifices rather than manipulate accounting figures. One of the participants in Salleh's study said: "We sit down in our third quarter meeting, look into the figures then try to reduce expenses like advertising, travelling and R&D. These actions are within our control".

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. According to Matsumoto (2002) managers want to avoid earnings surprises. There are two ways, according to the author, they can do that: first one is to manage earnings to beat or reach analysts' target. Second one is to low analysts' expectations, so they will low their predictions. Notice that both mechanisms involve costs.

The relationship between earnings management with information disclosure and compensation and debt contract

According to Iatridis and Kadornis (2009) identified the relationship between earnings management with information disclosure and compensation and debt contract. The findings of this study indicated that firms' directors who carry out information disclosure voluntary have less likely to commit earnings management whereas directors due to increasing compensation and preventing from debt contract cancelation have more tendency to commit earnings management. Pouheydari and Hemati (2004) in their study resulted that there is no positive significance relationship between liabilities to equity ratio and earnings management.

Meanwhile, the results of the test of ownership and compensation hypothesis indicated absence of significance relationship between the mentioned variables and earnings management.

Modari (2007) recognised 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 Kamali (2009) resulted that there is no significance difference between the quantities of the earnings management in firms which always have high financial leverage degree.

Leverage and REM

Previous studies (Norhayati, Rahayu & Noor 2013) with regard to real earnings management 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.

Lot of previous studies provide evidence that managers cut discretionary spending to achieve earnings targets. Some scholars such as Baber et al. (1991) had provided evidence that R&D spending is significantly less when spending jeopardizes the ability to report positive or increasing income in the current period.

Cohen and Zarowin (2010) find that declines in ROA subsequent to seasoned equity offerings are more attributable to the use of real earnings management than to the use of accrual earnings management. These papers suggest that the use of real earnings management is detrimental to the company’s future performance and that the consequences of using real earnings management are more severe than the consequences of using accrual earnings management.

Thomas and Zhang (2002) provide evidence consistent with managers overproducing to decrease reported Cost of goods sold, however, they cannot rule out the possibility that the result is due to adverse economic conditions. Roychowdhury (2006) develops empirical measures for RM of discretionary expense and overproduction and finds that that managers are trying to avoid reporting losses, undertake RM. Firms suspected of RM 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 Cost of goods sold.

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.

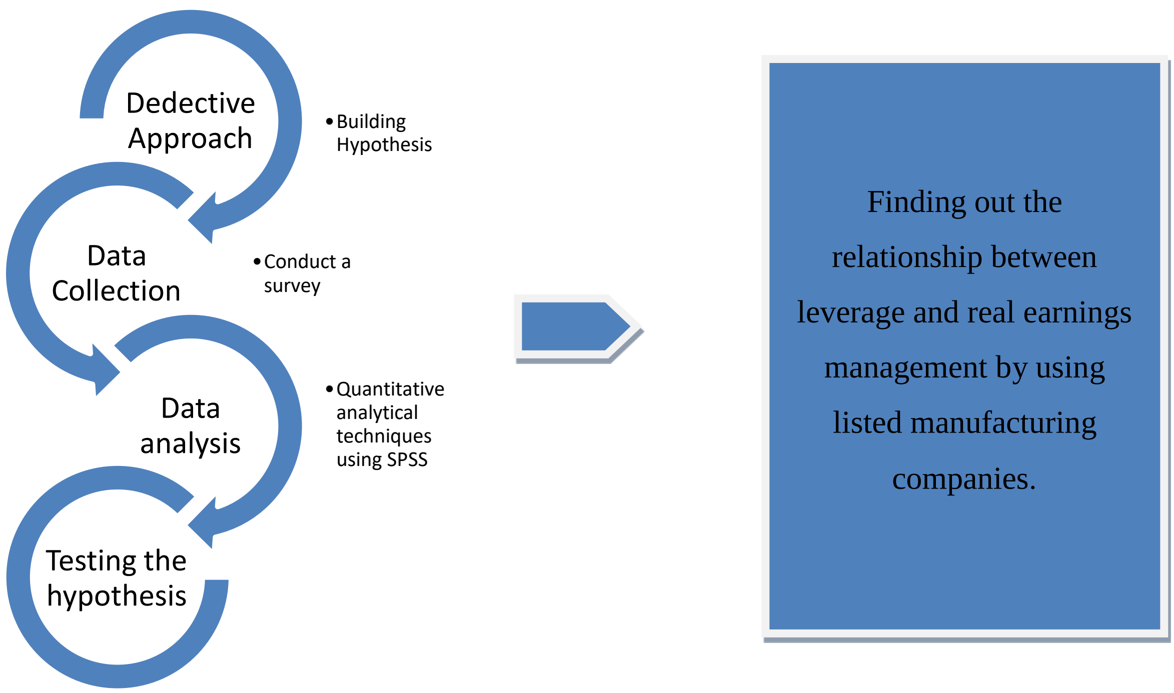
Finally we could understand that most of the previous studies has done to identify the relationship between the leverage and accrual earning management. And also few studies done to identify the relationship between "effects of the leverage and earnings management.

5) Data and methodology

Research questions identified are comprised with quantitative aspects. For the purpose of identifying relationships among variables of leverage and real earnings management, it was used deductive approach.

Deductive approach has been adopted to test the hypotheses mentioned in the 'Research questions'. Ontological assumption of constructivism will be adopted to identify the key drivers affecting the leverage and real earnings management.

5.1) Conceptual Diagram



5.2) Population and Study Sample

The Colombo Stock Exchange (CSE) has 183 companies representing 20 business sectors as at 30th November 2016. From using all of above companies, it was difficult to analyze the relationship between leverage and real earnings management using abnormal cash flow from operations, abnormal production cost and abnormal discretionary expenses. There-fore, all manufacturing companies under Colombo stock exchange as at 30th November 2016 have been taken into consideration in our study.

There are three main reason for selecting manufacturing sector,

- Manufacturing sector is an unbiased sector that we will be able gather evidence relating to leverage and real earnings management. For an ex. if we select financial sector, industry itself high geared.
- It is difficult to analyze the relationship between leverage and real earnings management for every company.
- Manufacturing sector representing considerable no of companies compared to other sectors, therefore it is easy to come to a conclusion.

5.3) Sources of Data

Main source of the data in deemed to be the annual reports of all listed manufacturing companies in Colombo Stock Exchange. Statistics of the study can be found through web sites and using annual reports of the companies not only annual reports further we expect to use management accounts as well. More over prior studies conducted and published in this research area also can be considered as a source of data.

5.4) Collection of Data

It is intended to use quantitative data collection methods. We have taken into consideration three hypothesis. Based on that, we collected evidence from the convenient populations that we have already selected. Hypothesis was adopted by using three prior researches of 'The Impact of Leverage on Real Earnings Management' by Zamria and Rahmanb (2013), 'Earning management through real activity manipulation' by Roychowdhury (2006) and 'The Determinants of Leverage of Sri Lankan Manufacturing Companies Listed on Colombo Stock Exchange' by Vijeyaratnam and Anandasayanan (2015),.

5.5) Exposure Assessment

Due to the data collection is conducted through quantitative data collection methods, it will give more opportunity to collect wide range of data. Even though, it is intended to use convenient sampling in the survey, selected sample substantially represents the population. Since data is Collected through web site of Colombo Stock Exchange, annual reports of the companies & management accounts which are not published by the company, it is expecting to collect lot of data. By interviewing managers of the companies, it will provide the insights of the subject matter.

5.6) Data Management

Data gathered from the survey will be fed to the SPSS in daily basis. Adequate backups will be maintained in cloud drives in order to avoid data losses.

5.7) Hypothesis Development

Based on prior studies the following hypothesis is developed as follow:

Are the suspected Low leveraged firms are more likely to engage in Real Earning Management than the higher leveraged firm?

a) H_0 – High leveraged firms are less likely to engage in Real Earning Management than the lower leveraged firm.

b) H_1- High leveraged firms are not likely to engage in Real Earning manipulation than the lower leveraged firm.

5.8) Measurement for Dependent Variable: Real Earnings Management

Prior researchers such as (Roychowdhury 2006, Cohen & Zarowin 2010, Norhayati, Rahayu & Noor 2013) have recognized following three metrix to examine real earning management. These studies define REM as actions managers take that deviate from normal business practices.

- Abnormal cash flow from operations (RES_CFO)
- Abnormal Production cost (RES_PROD)
- Abnormal discretion expenses (RES_DISEXP)

Based on the study carried out by Roychawdry (2006), has identified RES_CFO, RES_PROD and RES_DISEXP as the residual from the following models.

5.8.1) Model for RES_CFO

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

where,

CFO_{it} Cash flow from operation of firm i in period t
A_{it-1} Total assets of firm i in year t-1;
$Sales_{it}$ Sales of firm i in year t
$\Delta Sales_{it}$ Sales of firm i in year t less sales of firm i in year t-1;
ε_{it} A residual term that captures the level of abnormal cash flow of firm i in year t.

5.8.2) Model for RES_PROD

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

where,

$PROD_{it}$ The sum of cost of goods sold and change in inventory of firm i in year t;
$\Delta Sales_{it-1}$ 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.

5.8.3) Model for RES_DISEXP

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

where,

$DISEXP_{it}$ The sum of 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.

Company management can manipulate cash flow from operation by increase of price discount in order to accelerate sales for current period, and also they can manipulate discretionary expense by reducing the amounts allocated to research and development, advertising expenses in order to increase the current period earnings. On the other hand they can manipulate production cost by reducing cost of goods sold.

5.9) Measurement for Independent Variable: Leverage

Some scholars (Sweeney 1994, Jaggi and Lee 2002, Fung and Goodwin 2013, Norhayati, Rahayu & Noor 2013) have recognized that there is positive relationship between leverage and real earning management, and some others (Jensen 1986, Denis and Denis 1993, Jelinek 2007 and Wasimullah et al. 2010) have recognized that there is negative relationship between leverage and real earning management. Leverage can be measured by based on the ratio of total liabilities to total assets.

6) Empirical results

6.1) Descriptive Analysis.

Table 1- Summary Statistics for the full sample.

	RES_DISEXP	*RES_CFO*	*RES_PROD*	*Leverage*
Mean	0.261	0.003	0.045	0.231
Minimum	(0.905)	(0.091)	(0.022)	-
Maximum	1.239	0.085	0.197	0.976
Standard Deviation	0.241	0.015	0.002	0.197

Note : Full sample consists of 180 firm-year observations over the period 2011-2016. Leverage is measured by total debts scaled by total assets;

Above table shows the descriptive statistics for the full sample of observations. The mean for the firms which engage in Earning Management activities for the three different proxies for REM is different. From the above results, abnormal discretionary expenses show the highest mean, 26% of suspected firms engage in REM, compared to the other two proxies for REM. The mean for leverage is 23% that show the leverage among the Sri Lankan listed manufacturing companies in the sample is low. Thus, the uses of long term debt by Sri Lankan manufacturing companies are quite low.

6.2) Findings

In this section presenting the testing of the hypothesis developed in section 05, to identify whether the suspected Low leveraged firms are more likely to engage in Real Earning Management than the higher leveraged firm. This study is separately regressed the variables using each estimation model as presented in above. Where each model represents a different proxy for REM (RES_CFO, RES_PROD and RES_DISEXP). The results are presented in the table below.

Table 2 -Regression results of Abnormal Cash Flow, Abnormal Production Cost and Abnormal Discretionary Expenses

Variables	Abnormal Production Cost (RES_CFO)	Abnormal Cash Flow from Operations (RES_PROD)	Abnormal Discretionary Expenses (RES_DISEXP)
Constant 99%	0.000979858	-0.004616074	-0.000186482
LEV 99%	-0.002574918	0.012130345	0.000490048

Note : *Full sample consists of 180 firm-year observations over the period 2011-2016. Leverage is measured by total debts scaled by total assets;*

As per the above results, with respect to the hypothesis of this study, the leverage is negatively associated with REM and significant at the 1 per cent level which coefficient of -0.002574918 is only supported by the first model (RES_CFO). The results were consistent with Wasimullah et al., (2010) and Jelinek, (2007), that leverage limits the Earning Management.

When considering results of other two models those shows positive relationship, which is higher leverage results to real earning management. The second model (RES_PROD) as a proxy for REM shows a significant positive association with a coefficient of 0.012130345 with REM at 1 per cent significance level. In describing the positive association between REM and leverage, the findings support with Sweeney (1994) on debt hypothesis. The larger a firm's debt to equity ratio, the more likely the firm's manager is to select income increasing accounting procedures.

Finally the third model which is presenting the abnormal discretionary expenses (RES_DISEXP) also shows a positive relationship between leverage and real earning management with a coefficient of 0.000490048 with REM at 1 per cent significance level.

7) Conclusion.

The study shows mixed result as to relationship between leverage and earning management. As well as the previous literature has provided arguments to the positive association between EM and leverage, there is some empirical evidence with the opposite view (Jensen 1986, Denis & Denis 1993, Jelinek 2007, and Wasimullah et al. 2010). Consistent with the argument, this study shows that the leverage has a significant negative association with residual cash flow from operations

(RES_CFO), one of the proxies for REM. The result supports the review that leverage is one of the controlling and monitoring system, which limits earning management. But other two models (RES_PROD and RES_DISEXP) show a positive relationship with leverage. Although this study argues that leverage limits REM, the findings only document an association rather than a causal relationship between leverage and REM. Therefore, the causality of leverage leading to lower REM requires further theoretical and empirical examination.

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