
Degree of corporate real earnings management activities in India

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Introduction

Earnings management is “the purposeful intervention in the external financial reporting process with the intent of obtaining some private gain” (Schipper, 1989). It is the act usually done by the managers. In a wide angle “earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.” (Healy and Wahlen, 1999). Some level of flexibility and discretion in the use of accounting rules are available in Generally Accepted Accounting Principles (GAAP) while reporting the financial results. This flexibility allows managers to opportunistically engage in earnings management. This managerial opportunistic intervention misleads the stakeholders by providing an untrue financial report.

Earnings Management has become a prominent research area since the failure of global giants like Enron, WorldCom etc. In India the scandal of Satyam Computer Services Ltd has taken the researchers’ eye more towards the accounting frauds and earnings management. Earnings management is a deliberate attempt of managers to manipulate economic result (within GAAP) to report a more attractive earning result, even though the exact performance is a different one. Since the basic existence of corporates are upon the earnings figures most of the managers are trying to figure out their accounting figures in most attractive way. Prior studies mention two types of EM, accrual and real activity based. Kothari et al., (2012) quoted “Accruals-based earnings management occurs when managers intervene in the financial reporting process by exercising discretion and judgment to change reported earnings without any cash flow consequences”. Present study, consistent with prior literatures, takes real earnings management as “the management actions departures from normal operational practices, motivated by managers’ desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations.” (Roychowdhury, 2006).

A widely established literature marks the presence of opportunistic nature of EM in developed and emerging nations. The research in the field earnings management in India still have more opportunity since there is only countable studies are available. Accrual earnings management practices of corporates in India is a much explored area, however, the earnings management practices by real activities manipulation is an untouched area. The present study is focusing on the REM of both manufacturing and non-manufacturing firms in India.

Review of literature and hypothesis

2.1 Earnings management and manufacturing firms

Dabo and Adeyemi (2009) find evidence of accrual earnings management in Nigerian manufacturing firms. In their study on relationship of audit committee with discretionary accruals, they find a positive association among the variables. Hassan and Ahmed (2012) argue that establishment of corporate governance mechanism has effect on the corporate performance irrespective of the presence of earnings management. Earnings management literature over the world still has more dimensions to be extracted. Enormous research has carried on different aspects of EM over the world of which most are based in developed economies.

2.2 Earnings management literature in India

Even though the listed companies in India are much larger than other countries and prior studies (e.g., Ajit et al. 2013, Kaur et al. 2014, Agrawal and Chatterjee 2015, Das and Jena 2016) find many of these firms are suspect managing their earnings, research on earnings management in India is very limited. These studies are mostly concentrated on the AEM.

Sarkar et al. (2008) finds that the quality of governance mechanism can limit the opportunistic behavior of accrual earnings management. Rudra and Bhattacharjee (2012) studies the effect of IFRS on accrual

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earnings management and find that instead IFRS, the quality of financial reports is based more on factors like existent and enforcement of security laws, investor protection, etc. Ajit et al. (2013) in their study on 2229 non-financial companies listed in India finds that the average EM of Indian corporate sector is 2.9% of the total assets which is consistent to the degree of global average.

Kaur et al. (2014) in their study used Modified Jones model and Beneish M score model to detect the AEM practices of 332 publicly listed firms selected from six sectors of industry and find that firms in all industry are managing earnings. Goel (2012) studied the accrual earnings management practices of top 20 profit making listed firms in India and finds that firms in service sector are highly engaged in upward earnings management, whereas non-service sector firms indulge in downward strategy.

Das and Jena (2016) has focused on 333 equity issuing firms listed in India and finds that they are engaged in both AEM and REM. A major share of earnings management literature on corporates in India is relating to accrual management and it is hardly explored the presence of real activities based earnings manipulation.

2.3 Real earnings management models

Not like accrual EM, very few models are available to detect REM. Roychowdhury model (2006) and Gunny Model (2010) are identified as the available models in this area. While Roychowdhury model emphasizes some strategic decisions relating to sales manipulation, the Gunny model concentrates on manipulation of sale of fixed assets and investment. Even though Gunny's model introduced more variables than Roychowdhury model, it suffers like endogeneity problem, erroneous calculation of variables, and also it is less suitable for extremely small and big companies (El Diri 2017). Based on this facts the study consider Roychowdhury model as the best model to detect REM and hence used in the present study.

Prior studies documents the evidence of AEM in manufacturing firms. The real activities based manipulation of firms in manufacturing sector is an unexplored area as far as Indian is considered. Based on these insights the present study is attempting to detect the degree of real activities management practices of corporates in India using Roychowdhury model (2006). Hence the study hypothesises as,

H₁: Corporates in India are engaged in real earnings management

The study also makes an attempt to see the level of real activities based manipulation of manufacturing firms and non-manufacturing firms. Hence, hypothesis as:

H_{1a}: The manufacturing firms in India are engaged in real earnings management.

H_{1b}: The non-manufacturing firms in India are engaged in real earnings management.

Research Methodology

Sample selection

The study examines corporates selected from NSE NIFTY 500 Index. A sample of 50 firms are selected for the analysis. The study classifies selected samples in to manufacturing and non-manufacturing firms for further analysis. It excludes banking, insurance and financial firms. The sample covers financial statement data ranges over a period from 2009 to 2018 and is extracted from BLOOMBERG database.

Table 1: Sample and firm years

| | No. of Firms | No. of Firm years |
|-------------------------|--------------|-------------------|
| Total samples | 50 | 500 |
| Manufacturing firms | 25 | 250 |
| Non-manufacturing firms | 25 | 250 |

3.2. Measurement of REM

The selected firms are tested for REM on the basis of Roychowdhury (2006) model. Since earnings management cannot be directly identifiable the model uses three abnormal real activities as proxies for testing REM. The proxies are abnormal cash flow from operation, production cost and discretionary expenses. The abnormal proxies are the difference of actual value and normal value estimated by using regression coefficient. And these residuals serves as the proxies for REM. The following three proxy models of Roychowdhury (2006) is used to measure the real activities manipulation.

Cash flow model

It represents the reduction in cash flows due to undue price discounts and liberal credit terms so as to raise the sales revenue as part of reporting an improved result. Therefore, it is treated as a sales manipulation.

$$\frac{Cf_t}{Tot_Asset_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{Tot_Asset_{t-1}} + \alpha_2 \frac{Sale_Rev_t}{Tot_Asset_{t-1}} + \alpha_3 \frac{\Delta Sale_Rev_t}{Tot_Asset_{t-1}} + \varepsilon_t$$

Where,

Cf_t is cash-flows from operating activities in year t

Tot_Asset_{t-1} is total assets in year t-1

Sales_Rev_t is total sales in year t

ΔSales_Rev_t is the change in sales from year t-1 to year t

Production cost model

This model represents an increase of production volume and thereby reduce the cost of goods sold so as to report an improved earnings.

$$\frac{Pro_t}{Tot_Asset_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{Tot_Asset_{t-1}} + \alpha_2 \frac{Sale_Rev_t}{Tot_Asset_{t-1}} + \alpha_3 \frac{\Delta Sale_Rev_t}{Tot_Asset_{t-1}} + \alpha_4 \frac{\Delta Sale_Rev_{t-1}}{Tot_Asset_{t-1}} + \varepsilon_t$$

Where,

Pro_t is the production cost in year t. (Production cost is the sum total of cost of goods sold and change in inventory)

ΔSale_Rev_{t-1} is the change in sales from year t-2 to year t-1. Rest of the variables are same as earlier.

Discretionary expenditure model

It represents the reduction in discretionary expenditures so as to improve the current years reported earnings.

$$\frac{Dx_t}{Tot_Asset_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{Tot_Asset_{t-1}} + \alpha_2 \frac{Sale_Rev_{t-1}}{Tot_Asset_{t-1}} + \varepsilon_t$$

Where,

Dx_t is the discretionary expenditure in year t. It is the sum of advertising expenses, Research and development expenses and selling, general and administration (SG&A) expenses.

Sale_Rev_{t-1} is the sales in year t-1. Rest of the variables are same as earlier.

The study follows Cohen and Zarowin (2010) methodology to find the aggregate effect of real earnings management. Following this, three individual proxies of Roychowdhury model are combined together to get a comprehensive measure (ReM). In this model **Rm_Cf** and **Rm_Dx** are multiply by negative one so high **Rm_Cf** and **Rm_Dx** denotes a more possibility of sales manipulations through lenient credit terms and reduced discretionary expenses. **Rm_Pro** is taken without any change since higher production costs indicate overproduction to attain a reduced cost of goods sold. The comprehensive model, ReM, is as follows,

$$ReM = Rm_Cf * (-1) + Rm_Dx * (-1) + Rm_Pro$$

Results and discussions

Real earnings management of manufacturing firms

Table 2 shows the model specification of Roychowdhury model of manufacturing companies in India. It reveals a significant result of all the three proxies. These results leading to an evidence of real earnings management practices of the manufacturing companies in India. It is evident, in table 3, that manufacturing firms are aggressively using cash flow manipulation (Rm_Cf), as it shows the highest average (0.082) absolute value of REM. After cash flow manipulation the most followed strategy is reduction of discretionary expenditures (0.053) than overproduction (0.043). Even though there is a significant and positive REM, the aggregate REM in manufacturing sector of India is too small (0.011).

The direction of REM practices of manufacturing firms in India is depicted in Table 4. It shows that more than half of manufacturing firms in India are engaged in real activities manipulation in order to report an improved earnings figure (showing upward direction). However, it is evident that manufacturing firms are using real earnings management to report reduced earnings too.

Table 2: Model parameters (manufacturing firms)

| Coefficient | Rm_Cf | Rm_Pro | Rm_Dx |
|----------------------------|---------------------|-----------------------|-----------------------|
| Intercept | 0.0425*** (2.67) | 0.0443*** (5.27) | 0.0179 (1.57) |
| 1/Tot_Asset _{t-1} | 249.26 (0.26) | 1646.031*** (2.94) | 5040.904*** (7.58) |

| | | | |
|---|------------------|---------------------|-----------------------|
| $\text{Sale_Rev}_t/\text{Tot_Asset}_{t-1}$ | 0.0131 (1.06) | -0.0033 (-0.46) | - |
| $\Delta\text{Sale_Rev}_t/\text{Tot_Asset}_{t-1}$ | 0.088* (1.95) | 0.1191*** (4.56) | - |
| $\Delta\text{Sales_Rev}_{t-1}/\text{Tot_Asset}_{t-1}$ | - | -0.0168 (-0.63) | - |
| $\text{Sale_Rev}_{t-1}/\text{Tot_Asset}_{t-1}$ | - | - | -0.0249*** (-2.99) |
| R-squared | 5.6% | 19.14% | 20.6% |
| F statistics | 4.42 | 11.54 | 28.89 |
| Prob > F | 0.0048 | 0.0000 | 0.000 |

Note: *Rm_Cf*, *Rm_Pro* and *Rm_Dx* are the REM under the three proxy models. Values in parentheses are the *t* statistics; *, ** and *** are level of significance at 10%, 5% and 1%.

Table 3: Degree of real earnings management (manufacturing firms)

| | Mean | Med | Min | Max | St. Dev |
|---------------------|-------|-------|----------|-------|---------|
| <i>Rm_Cf</i> (Abs) | 0.082 | 0.063 | 0.001 | 1.167 | 0.098 |
| <i>Rm_Pro</i> (Abs) | 0.043 | 0.030 | 0.000056 | 0.433 | 0.045 |
| <i>Rm_Dx</i> (Abs) | 0.053 | 0.033 | 0.0001 | 0.743 | 0.076 |
| ReM | 0.011 | 0.004 | -0.904 | 1.265 | 0.175 |

Note: *ReM* is the total effect of REM

Table 4: Direction of real earnings management (manufacturing firms)

| | <i>Rm_Cf</i> (%) | <i>Rm_Pro</i> (%) | <i>Rm_Dx</i> (%) |
|----------|------------------|-------------------|------------------|
| Upward | 54 | 56 | 59 |
| Downward | 46 | 44 | 41 |

Real earnings management of non-manufacturing firms

Table 5 explains the model specification of Roychowdhury model of real activities manipulation of non-manufacturing firms. The result reveals that non-manufacturing firms are engaged in REM activities in order to report more favourable earnings figure. Table 6 shows the degree of REM of non-manufacturing firms in India. Like manufacturing firms, the non-manufacturing firms are also more resort on cash flow manipulation (with a mean absolute value of 0.073). These firms are largely following discretionary expenditure manipulation (0.046) than production cost strategy (0.042) to manage their earnings. Similar to manufacturing firms it is identified that the aggregate REM of non-manufacturing firms is also too small (0.0098), but it figures positive.

Table 5: Model parameters (non-manufacturing firms)

| Coefficient | <i>Rm_Cf</i> | <i>Rm_Pro</i> | <i>Rm_Dx</i> |
|---|----------------------|----------------------|----------------------|
| Intercept | 0.0466*** (3.98) | 0.02863*** (3.04) | 0.0088 (1.03) |
| $1/\text{Tot_Asset}_{t-1}$ | 1962.74** (2.53) | 3000.36*** (4.27) | 2925.45*** (5.07) |
| $\text{Sale_Rev}_t/\text{Tot_Asset}_{t-1}$ | 0.00878 (0.98) | 0.0019 (0.26) | - |
| $\Delta\text{Sale_Rev}_t/\text{Tot_Asset}_{t-1}$ | 0.06253*** (3.53) | 0.03913*** (2.75) | - |
| $\Delta\text{Sales_Rev}_{t-1}/\text{Tot_Asset}_{t-1}$ | - | 0.00084 (0.06) | - |
| $\text{Sale_Rev}_{t-1}/\text{Tot_Asset}_{t-1}$ | - | - | -0.0027 (-0.43) |
| R-squared | 10.5% | 14% | 11% |

| | | | |
|--------------|-------|-------|-------|
| F statistics | 8.66 | 7.97 | 13.74 |
| Prob > F | 0.000 | 0.000 | 0.000 |

Note: *Rm_Cf*, *Rm_Pro* and *Rm_Dx* are the REM under the three proxy models. Values in parentheses are the *t* statistics; *, ** and *** are level of significance at 10%, 5% and 1%.

Table 6: Degree of real earnings management (non-manufacturing firms)

| | Mean | Med | Min | Max | St. Dev |
|---------------------|--------|-------|--------|-------|---------|
| <i>Rm_Cf</i> (Abs) | 0.073 | 0.053 | 0.0006 | 0.466 | 0.072 |
| <i>Rm_Pro</i> (Abs) | 0.042 | 0.022 | 0.0002 | 0.496 | 0.063 |
| <i>Rm_Dx</i> (Abs) | 0.046 | 0.022 | 0.0002 | 0.341 | 0.064 |
| ReM_ | 0.0098 | 0.002 | -0.519 | 0.483 | 0.136 |

Note: *ReM* is the total effect of REM

The direction of REM practices of non-manufacturing firms is given in Table 7. More than half of non-manufacturing firms in India are engaged in real activities manipulation in order to report improved earnings (upward direction). However, we can say that except discretionary expense manipulation almost half of the non-manufacturing firms are using real earnings management to report a reduced earning. It is evident that these firms are aggressively using discretionary expenses as a tool to reduce their earnings figures.

Table 7: Direction of real earnings management (non-manufacturing firms)

| | <i>Rm_Cf</i> (%) | <i>Rm_Pro</i> (%) | <i>Rm_Dx</i> (%) |
|----------|---------------------|----------------------|---------------------|
| Upward | 53 | 60 | 85 |
| Downward | 47 | 40 | 15 |

Conclusion

In the study, we have empirically tested the degree of real earnings management of manufacturing and non-manufacturing firms. We further examined the direction of REM of the firms in India. Based on the Roychowdhury (2006) model the study identified that both manufacturing and non-manufacturing firms are undergoing real activities manipulation. Even though the degree of REM is showing slight difference among manufacturing and non-manufacturing firms, it is identified that manufacturing firms are more engaged in REM than non-manufacturing firms. It is also found out that firms are more resorted on the cash flow (*Rm_Cf*) manipulation strategy than production cost manipulation and reduction of discretionary expenses.

The study provides a new evidence regarding the direction of real activities manipulation of corporates in India. The direction of REM shows that both classes of firms are using the practice as an income or earnings increasing strategy. However, the overall real earnings management (ReM) in India is very small comparing to other developed and emerging countries.

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