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great by
deeds, not by
birth"

-Chanakya

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**Earnings Management to Avoid Losses: Evidence from
India**

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ABSTRACT

The present study examine whether Indian corporates undertake earnings management methods to avoid earnings losses. First, this paper provides evidence that firms manage reported earnings to avoid losses in India. Second, the results indicate that two components of earnings, cash from operations and changes in working capital, are used to achieve increases in earnings. The robustness of the results is examined under various scenarios. The results are consists with existing literature. The present study support two theories based on stakeholder's use of information-processing heuristics and prospect theory about the motivation for avoidance of earnings losses. The results are useful to regulators, investors and financial analysts.

Keywords: Earnings management; Earnings discontinuity; Loss avoidance; India

Earnings Management to Avoid Losses: Evidence from India

1. Introduction:

The anecdotal evidence suggests that managers have incentives to avoid earnings decreases and losses. Researchers provide evidence for the same and also examine how managers do avoid earnings decreases and losses (see Burgstahler and Dichev 1997; Bollen and Pool, 2009; Gilliam, et al., 2014; Li, 2014). In the absence of earnings management, a relatively even distribution of changes in annual net income is expected. Burgstahler and Dichev (1997) document a discontinuity in the distribution of earnings at zero which they interpret as evidence that ‘losses are managed away’. Their interpretation is relatively widespread. The literature is consistent with the theory that managers take actions to ensure that earnings meet benchmarks, example, earnings are managed to avoid small losses, small earnings decreases, and small negative earnings surprises. However, there is a consensus on the existence of the discontinuity of reported earnings numbers. In United States of America (USA) context, Gilliam et al. (2014) find that the well-known zero-earnings discontinuity disappears soon after passage of the Sarbanes-Oxley Act (SOX). Given the mixed results, researchers are interested to find the evidence for avoiding of losses and rationale for such discontinuity particularly at zeros across different economy setup.

In this paper, we make an attempt to examine whether managers of Indian companies focus on avoiding losses and also examine how companies avoid reporting losses. The evidences are explained under various methods of earning management like current assets, current liabilities, net working capital and other accruals. It is found that Indian companies also provide evidence that managers have incentives to avoid losses while reporting net income numbers for the period. The robustness of the results is examined under different class intervals, different variables of earnings and different scaling of earnings. The results are useful to regulators, investors and analysts.

The remainder of the paper is organized as follows. Section 2 discusses the pertinent review of literature. Section 3 presents research methodology in terms of description of the data and sample selection process. Section 4 presents our main results, discussions and analysis. Lastly, section 5 concludes.

2. Review of Literature:

A large body of research demonstrates the involvement of firms in earnings management. Burgstahler and Dichev (1997) find unusually low frequencies of small decreases in earnings and small losses and unusually high frequencies of small increases in earnings and small positive income. The discontinuity in earnings around zero is shown as “kink” and it is widely interpreted as existence of earnings management to avoid the losses. The earnings management practice to avoid losses is also observed by studies conducted across various countries like in Australia (Holland and Ramsay, 2003), China (Wang et al, 2008), and Thailand and Singapore (Charoenwong, and Jiraporn, 2009). The incentives to report higher earnings include customers’ willingness to pay higher price for goods, better terms from suppliers, better terms from lenders, and lesser attrition of employees (Bowen et al 1995). This

suggests that the existence of marginal benefits of earnings management increase sharply as earnings are managed from a small loss to small positive earnings. Burgstahler and Dichev (1997) find working capital accruals and real measures as methods used to manage earnings to avoid small losses and report small amount of positive earnings.

Dechow et al (2003) find no relation between boosting of discretionary accruals and reporting small amount of earnings instead of small amount of loss. It also cautions interpretation of discontinuity in earnings around zero as an evidence of earnings management to avoid losses and identify alternative explanation for this discontinuity. Like, stock exchange listing requirement, real actions to improve the earnings performance and scaling by market value and conservative accounting principles are identified as alternative explanations to discontinuity in earnings. Later, Durtschi and Easton (2005) and Durtschi and Easton (2009) identify the scaling bias and sampling bias as the reasons for discontinuity in earnings around zero. Beaver et al (2007) find asymmetric effect of income taxes and special items on earnings as two explanations for discontinuity earnings.

Burgstahler and Chuk (2014), Jorgensen (2013), Hensen (2010) and Roychowdhury (2006) conclude zero-earnings discontinuity as evidence of earnings management. Gilliam et al (2015) finds disappearance of zero-earnings discontinuity due to passage of Sarbanes-Oxley (Sox) in 2002 in case of United States of America (USA). Thus the existing literature finds the existence of earnings management to avoid losses based on USA and other countries. Whereas, few argue disappearance of such earnings. In this context, it is interesting to examine whether such evidence exists in Indian context and examine the methods of earnings management used to avoid losses are c. So far, no particular study on earnings management examines this research question in Indian context.

3. Methodology:

Sample firms: The extant study is based on 1648 listed firms of National Stock Exchange of India (NSE) after eliminating 195 financial services' sector firms from the total number of NSE listed firms 1843. The financial statements reported by financial service sector firms are regulated and controlled by sectoral regulators. Therefore, such firms are eliminated from the final sample. For the purpose of analysis, the data is collected for a period of 15 years that is from 2000-01 to 2014-2015. Since, the cash flow statement is made mandatory from 2001-02 year onwards, the study period is confined to 2001-2015.

During this period, there are 13, 322 firm-years' profit after tax (PAT) as presented in Table 1. These earnings are scaled by beginning of the year market value as used by Burgstahler and Dichev (1997) and Gilliam et al (2015). For checking the robustness of the results, we also scaled the earnings by the beginning of the year total assets as used by Roychowdhury (2006).

The histogram graphs are plotted to examine the evidence of avoiding of earnings losses. This methodology is widely used by various researchers (like Burgstahler and Dichev, 1997; Gilliam et al, 2015; Dechow, 2003; Durtschi and Easton, 2005; etc.). We use 0.005 as the class interval width as used in Burgstahler and Dichev (1997),

Gilliam et al (2015), and Dechow et al (2003). We also use Silverman (1986) model to decide the class interval width. According to this, the class interval is measured as follows:

$$\alpha \times 1.364 \min \left(\sigma, \frac{Q}{1.340} \right) N^{-1/5}$$

Where,

σ empirical distribution's standard deviation,

Q is the interquartile range,

N is the number of observations and

α is 0.776.

The test statistic used to test whether the distribution is smooth is the difference between the actual number of observations in an interval and the expected number of observations in the interval, divided by the estimated standard deviation of the difference (see Burgstahler and Diche, 1997).

Since the number of observations in an interval is a random variable which is approximately independent of the number in adjacent intervals, the variance of the difference between the observed and expected number of observations is approximately the sum of the variances of the components of the difference. Denoting the total number of observations as N and the probability that an observation will fall into interval i by p_i , the variance of the difference between the observed and expected number of observations for interval i is approximately

$$NP_i(1 - P_i) + (1/4)N(P_{it} + P_{i+1})(1 - P_{it} - P_{i-1})$$

Prevalence of earnings management to avoid losses is the difference between observed number of observations and expected number of observations of three broad increasing negative class intervals left to zero i.e., 0.000 to -0.005, -0.005 to -0.010 and -0.010 to -0.015. The expected number of observations of these three class intervals is the observed number of observations of three broad increasing positive class intervals right to zero i.e., 0.000 to 0.005, 0.005 to -0.010 and 0.010 to -0.015.

All other variables considered for analysis are measured as follows. Beginning of the year Current assets and current liabilities scaled by beginning market value are the two ex ante proxies of earning management. Net cash flow from operating activities, change in working capital and other accruals are the ex-post three proxies of earnings management. Beginning current assets include accounts receivables, inventory and other currents. Beginning current liabilities include accounts payables, tax payable and other current liabilities. Net cash flow from operating activities number is taken from the cash flow statement. Change in working capital is change in accounts receivables, inventory and other current assets minus change in accounts payables, tax payables and other current liabilities. The other accruals are defined as profit after tax minus cash from operations and changes in working capital.

Table 1

Descriptive statistics by year for scaled values of earnings

Year	N	Mean	Std. dev.	25%	50%	75%
Mar-02	687	-0.642	3.668	-0.100	0.090	0.239
Mar-03	647	-0.644	3.818	0.001	0.116	0.287
Mar-04	612	-0.374	3.204	0.034	0.174	0.356
Mar-05	598	-0.125	2.390	0.051	0.107	0.233
Mar-06	640	-0.019	1.104	0.046	0.085	0.149
Mar-07	738	0.072	1.445	0.034	0.066	0.108
Mar-08	903	0.047	0.440	0.036	0.075	0.140
Mar-09	1034	0.009	0.396	0.010	0.049	0.095
Mar-10	1079	0.176	1.488	0.055	0.162	0.337
Mar-11	1164	0.042	0.458	0.025	0.065	0.130
Mar-12	1258	-0.050	0.926	0.007	0.050	0.113
Mar-13	1318	-0.128	1.179	0.002	0.055	0.124
Mar-14	1329	-0.388	2.606	-0.039	0.052	0.129
Mar-15	1315	-0.611	3.392	-0.051	0.043	0.110
Total	13322					

*Notes:**MV_t: Market value at the end of fiscal year**Earnings_t: Profit after Tax in period t**Scaled earnings_t: Earnings_t/MV_{t-1}*

4. Results, Discussions and Analysis:

4.1. Existence of earnings management to avoid losses:

The *Figure 1* is a histogram and shows the frequency of scaled earnings in different class intervals with 0.005 as each class interval width. This histogram is based on +0.30 to -0.30 ranges. The first class interval left to zero and first class interval right to zero are shown with dark lines. The range of first class interval left to zero is 0.000 to -0.005 and the range of first class interval right to zero is 0.000 to 0.005. In 239 firm-years, the sample firms have reported earnings in the first class interval right to the zero as compared to 56 firm-years in the first class interval right to zero. This jump in frequency from 56 in the first class interval left to zero to 239 frequency of first class interval right to zero shows the irregularity and discontinuity in histograms. The frequency in first class interval right to zero is 427 percent of the frequency reported in first class interval left to zero. The robustness of these results is examined by classifying the sample under various class intervals as discussed in the literature. As presented in *Figure 2*, we get similar results when histogram of scaled earnings is constructed with the help of 0.0165 as class interval based on Silverman (1986). In addition to histograms based on class interval width of 0.005 and 0.0169 as presented in *Figure 1* and *Figure 2* respectively, we also find similar results with other class interval width of 0.0025, 0.0075 and 0.010. This irregularity and discontinuity near zero indicates the involvement of sample firms in earnings management to avoid the

small losses to report a small amount of profit. These results are in line with the existing studies based on USA and other countries.

Figure 1

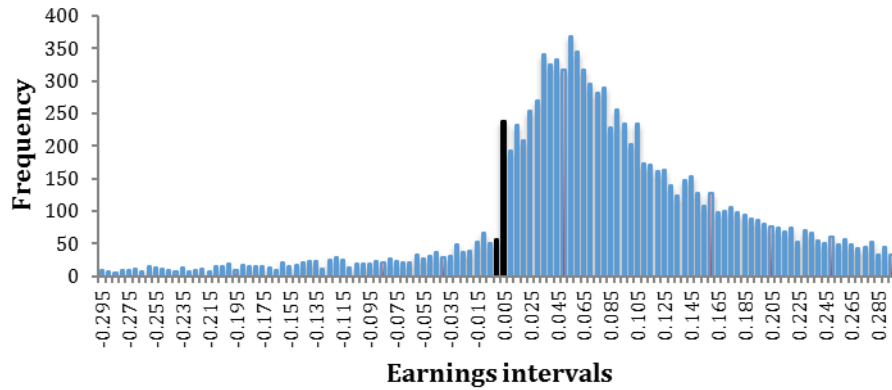


Figure 1. The distribution of annual net income scaled by beginning of the year market value. The distribution interval widths are 0.005. When the interval width is 0.005, the first interval to the right of zero contains all observations in the interval (0.000, 0.005), the second interval contains (0.005, 0.010) and so on. The first interval to the left of zero contains all observation in the interval (-0.005, 0.000), the second interval contains (-0.010, -0.005) and so on. The first interval to the right of zero and first interval to left of the zero are highlighted with dark lines. Frequency is the number of observations in a given earnings interval.

Figure 2

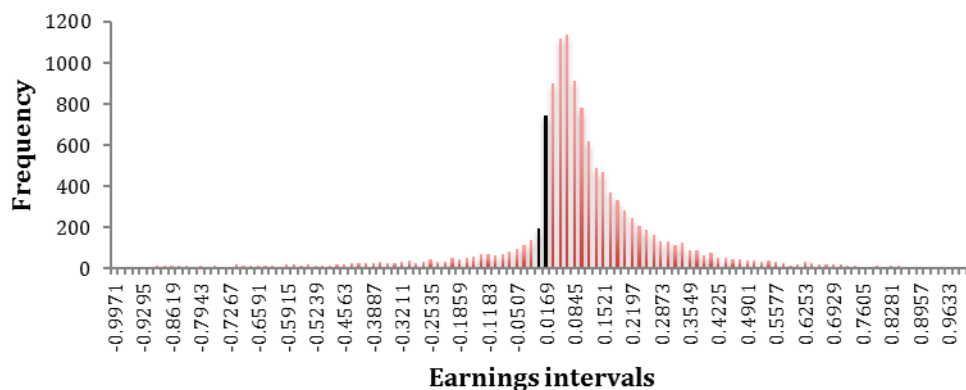


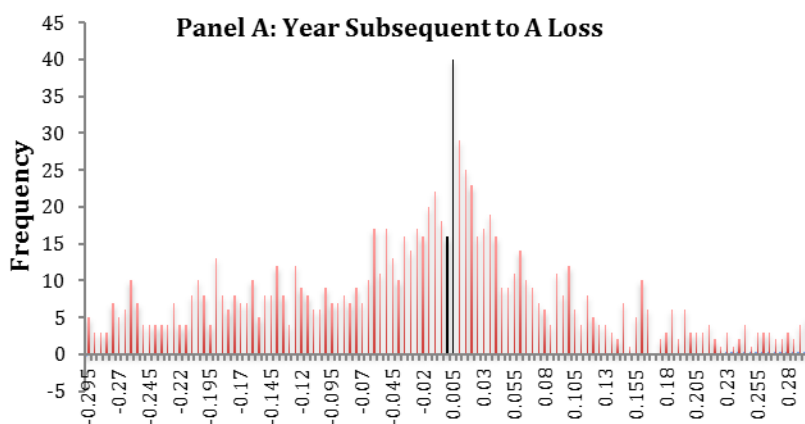
Figure 2. The distribution of annual net income scaled by beginning of the year market value. The distribution interval widths are 0.0169. When the interval width is 0.0169, the first interval to the right of zero contains all observations in the interval (0.000, 0.0169), the second interval contains (0.0169, 0.0338) and so on. The first interval to the left of zero contains all observation in the interval (-0.0169, 0.000), the second interval contains (-0.0169, -0.0338) and so on. The first interval to the right of zero and first interval to left of the zero are highlighted with dark lines. Frequency is the number of observations in a given earnings interval.

The exiting literature and anecdotal evidence shows that incentives to avoid losses become stronger with the length of the positive earnings reporting periods of the firms. Such stronger incentives result into higher earnings management to avoid the

losses. *The Panel A of Figure 3* shows the scaled reported earnings of the firms which reported loss in previous year. This figure shows that the number of frequency of first class interval left to zero is 16 as compared to number of frequency in first class interval right to zero is 40. The first class interval with the range of 0.000 to 0.005 has 250 percent of frequency of the first class interval with the range of 0.000 to -0.005. Although there is an evidence of earnings management in case of firms with loss in previous years, the level of earnings management by such firms is less as compared to sample firms' earnings management presented in Figure 1 and Figure 2. *The Panel B of Figure 3* finds the scaled reported earnings subsequent to positive earnings in one or two years. This discontinuity between first negative class interval left to zero and first positive class interval right to zero is high. The number of observations are 31 in the first negative class interval as compared to 153 observations in first positive interval. The first positive class interval has 494 percent observations of first negative class interval. This implies that the discontinuity in earnings and earnings management in case of firms-years subsequent to one or two years of profit is much higher as compared to earnings discontinuity and earnings management in case of firm-years subsequent to loss in previous year. *The Panel C of Figure 3* shows the histogram of scaled earnings subsequent to reporting positive earnings in three or more years. The number of observations in the first negative and first positive class intervals are 18 and 94 respectively. The first positive class intervals' observations consists 522 percent of first negative class intervals' observations. The discontinuity in earnings and earnings management in such firm-years subsequent to positive earnings in three or more years is higher than the firm years subsequent to losses and positive earnings in one or two years.

Thus, the empirical analysis with the help of histograms finds the existence of earnings management in India to avoid losses. The earnings management level is higher in the year subsequent to reporting positive earnings in three or more years. These findings are consistent with the findings of existing literature based on USA.

Figure 3



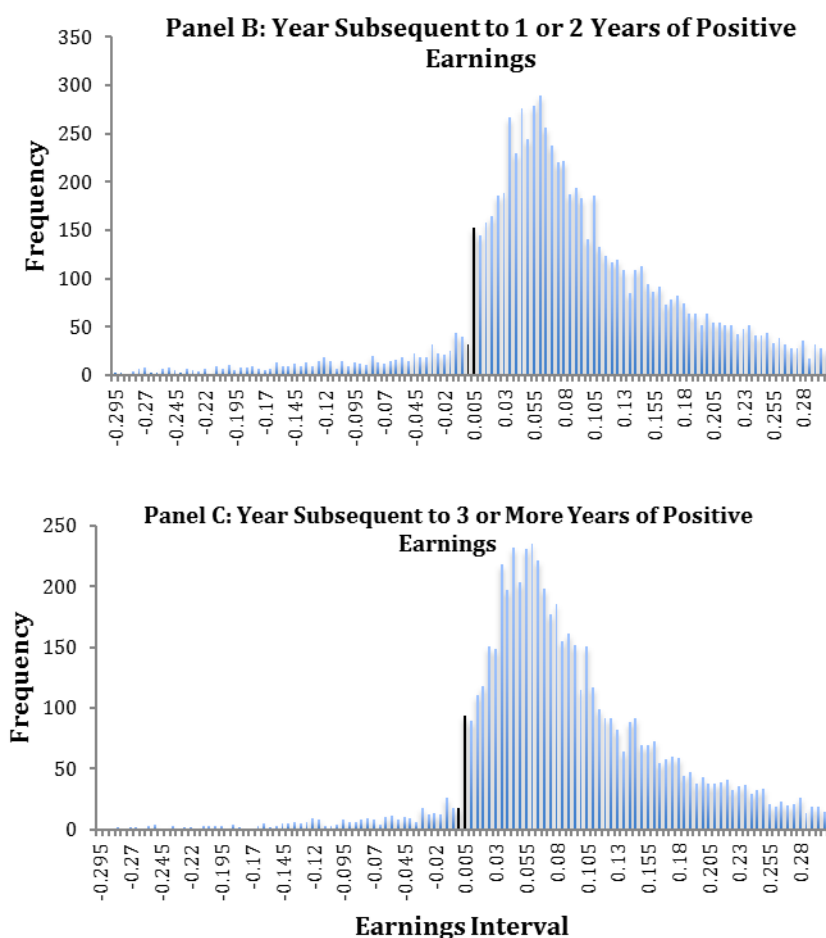


Figure 3. Three empirical distributions of earnings scaled by market value categorized according to the pattern of preceding earnings of the firm. Panel A: the distribution for the years immediately following a loss; Panel B: the distribution for the years following exactly one or two years of positive earnings; and Panel C: the distribution for the years following three or more years of positive earnings. (The definition of variables is similar to Figure 1.)

4.2. Prevalence of Earnings management to avoid losses:

The results in Section 4.1 find the evidence of earnings management to avoid losses in India. In this section, we analyze the prevalence of earnings management to avoid losses. The prevalence is the difference between observed number of observations and expected number of observations. We select first three negative class intervals left to zero i.e. 0.000 to -0.005, 0.000 to -0.010 and 0.000 to -0.015. The expected number of observations of three class intervals is observed number of observations of positive class intervals right to zero i.e. 0.000 to 0.005, 0.000 to 0.010 and 0.000 to 0.015. Based on *Figure 1*, we find that the cases of earnings management in these three increasing class intervals near zero are 183, 325 and 492. These cases of earnings management to avoid losses constitute 1.38 percent, 2.44 percent and 3.69 percent of the total number of observations and 6.80 percent, 12.08 percent and 18.29 percent of number of negative observations in the study. Thus, we find high prevalence (magnitude) of earnings management to avoid losses in India.

4.3. Evidence on the methods of earnings management to avoid losses:

4.3.1. Evidence on the ex ante cost of earnings management:

Beginning current assets and current liabilities scaled by beginning market values are considered as ex-ante proxies of earnings management. We propose the cost of managing earnings to avoid losses would be less when the firms have more current assets and current liabilities in the beginning of the year of earnings management. Contrary to this, the firms with lesser current assets and lesser current liabilities would have more cost of managing earnings to cross thresholds.

Figure 4

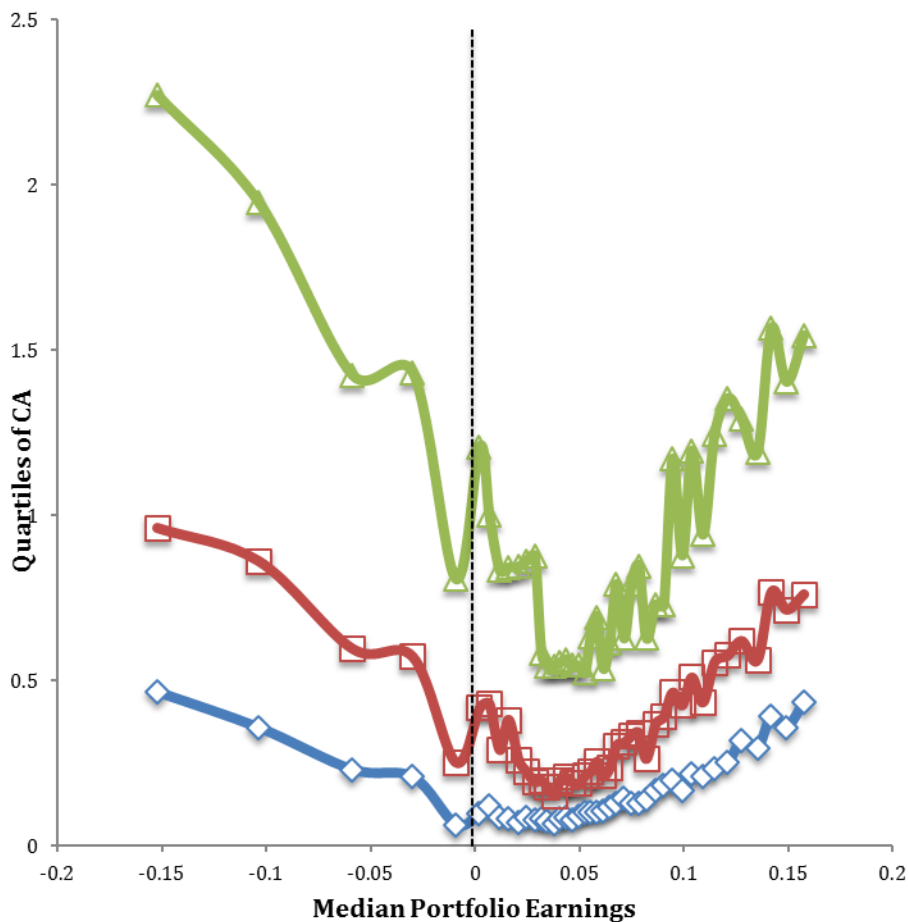


Figure 4. Earnings portfolios of 200 observations each are formed on the magnitude of scaled earnings. Median portfolio earnings on the horizontal axis represent the median earnings for each portfolio. Three quartiles (the 25th, 50th and 75th percentiles) of the distribution of beginning-of-the-year current assets scaled by market value for each portfolio are plotted against the median earnings for each portfolio. Beginning-of-the-year current assets are defined as the sum of accounts receivables, inventory and other current assets.

Figure 5

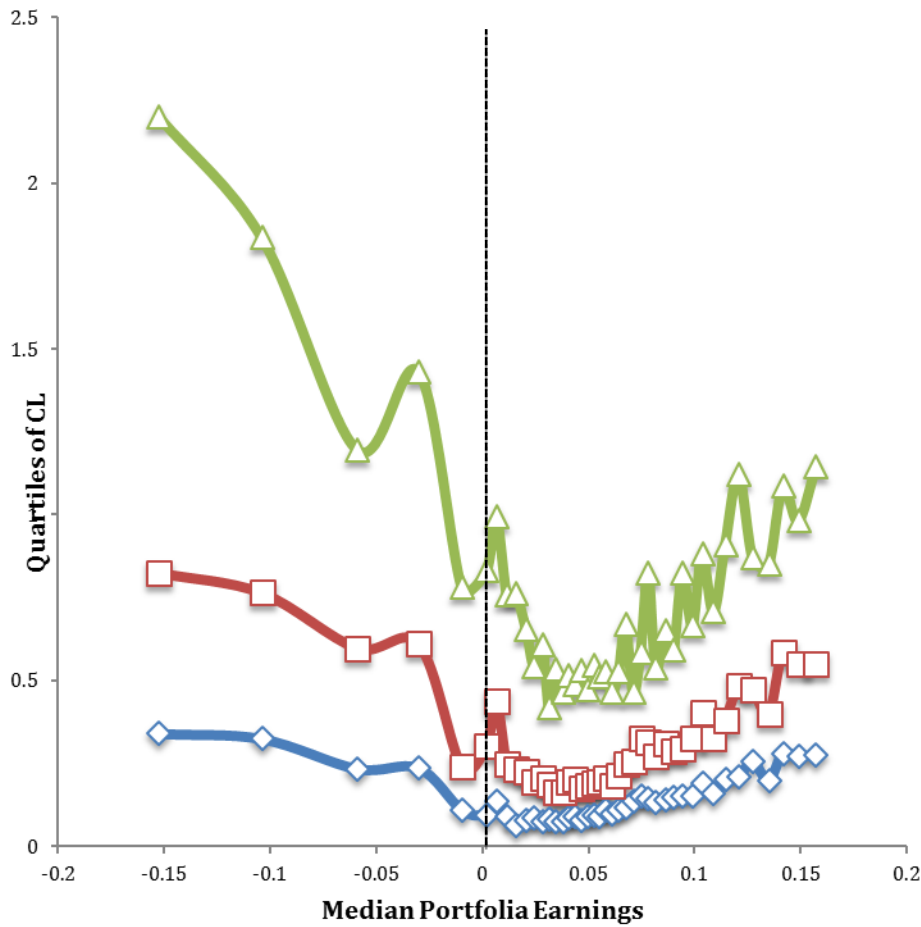


Figure 5. Earnings portfolios of 200 observations each are formed on the magnitude of scaled earnings. Median portfolio earnings on the horizontal axis represent the median earnings for each portfolio. Three quartiles (the 25th, 50th and 75th percentiles) of the distribution of beginning-of-the-year current liabilities scaled by market value for each portfolio are plotted against the median earnings for each portfolio. Beginning-of-the-year current liabilities are defined as the sum of accounts payables, taxes payables and other current liabilities.

As presented in **Figure 4 and 5**, we find that the beginning current assets and current liabilities scaled by beginning market value are higher during the year of earnings management to avoid the losses. The higher inventory, accounts receivables, other current assets and higher accounts payables and short-term provisions enable the firm to achieve this with lesser cost. The current assets and current liabilities of first portfolio of 200 firm-years right to zero earnings are substantially higher as compared to current assets and current liabilities of first portfolio of 200 firms left to zero. The higher current assets and current liabilities in the year of earnings management exist in quartile 1, quartile 2 and quartile 3. Thus, results indicate the use of current assets and current liabilities as a measure of earnings management to avoid losses.

4.3.2. Evidence on the ex post results of earnings management:

We use net cash flow from operating activities, change in working capital and other accruals as ex-post proxies of earnings management to avoid the losses.

4.3.2.1. Cash flow from operations (CFO):

Figure 6

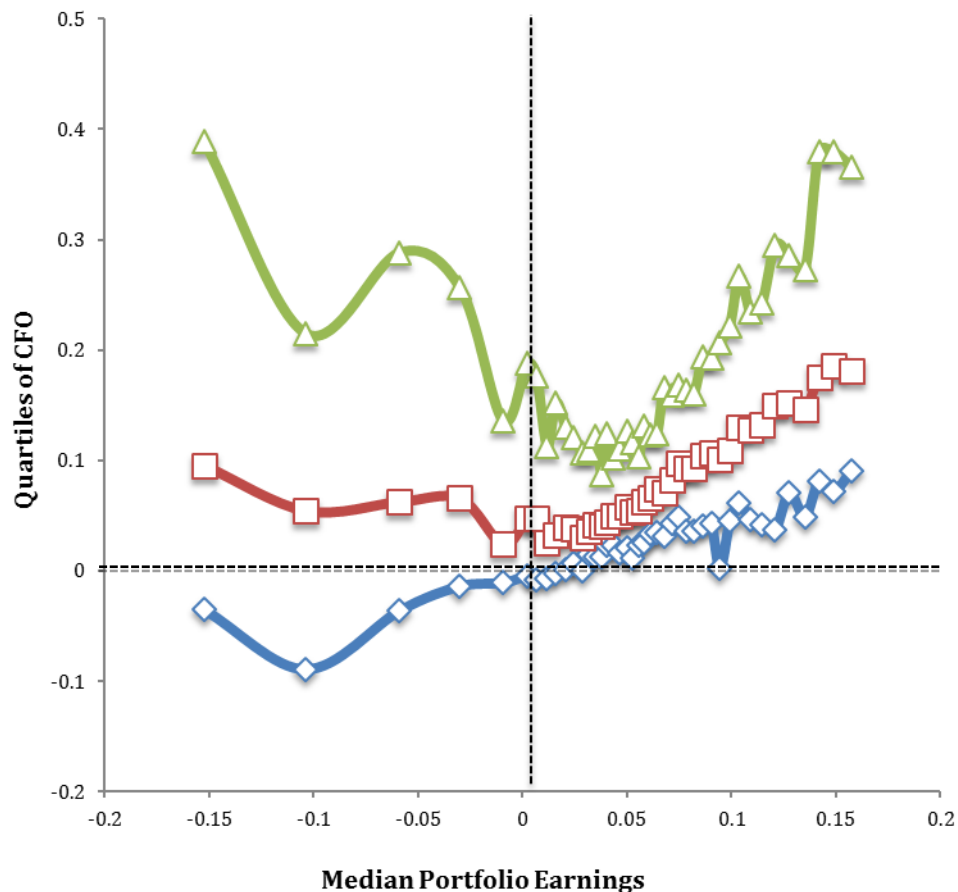


Figure 6. Earnings portfolios of 200 observations each are formed on the magnitude of scaled earnings. Median portfolio earnings on the horizontal axis represent the median earnings for each portfolio. Three quartiles (the 25th, 50th and 75th percentiles) of the distribution of cash flow from operating activities (CFO) scaled by market value for each portfolio are plotted against the median earnings for each portfolio. Cash flow from operating activities is directly taken from cash flow statement.

We propose that cash flow from operating activities scaled by beginning market value acts as real measure of earnings management to avoid the losses. Net cash flow from operating activities is the direct figure from cash flow statement. In this method, the firms attempt to reduce discretionary cash expenses such as research and development expense, senior management bonus and so on to minimize the expenses to manage earning to achieve the earnings thresholds. Therefore, we propose significant increase in net cash flow from operating

activities during the firm-years of earnings management. As proposed, in **Figure 6**, we find significantly higher cash flow from operating activities of the first positive portfolio of 200 firm years right to zero with positive earnings as compared to first portfolio of 200 firms left to zero with negative earnings. The higher net cash flow from operating activities in the year of earnings management exists in quartile 3 and quartile 2. This indicates that the firms are involved in managing real measures to manage earnings to avoid the losses.

4.3.2.2. Changes in working capital:

Figure 7

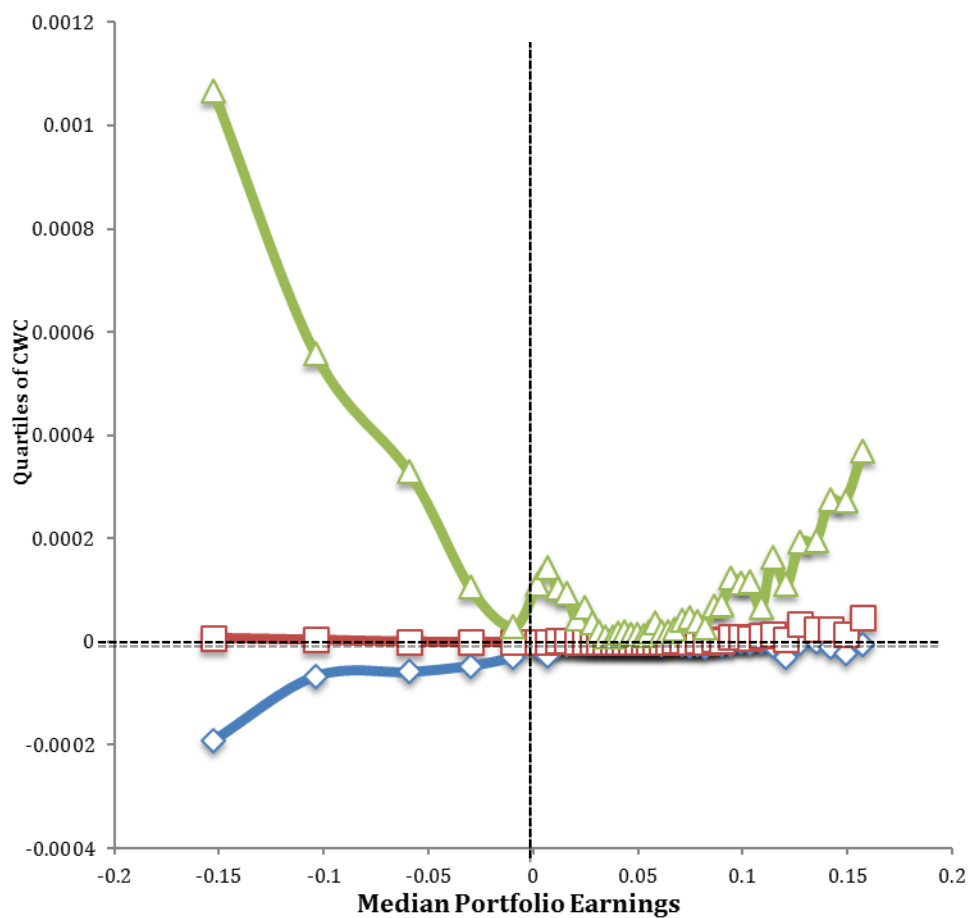


Figure 7. Earnings portfolios of 200 observations each are formed on the magnitude of scaled earnings. Median portfolio earnings on the horizontal axis represent the median earnings for each portfolio. Three quartiles (the 25th, 50th and 75th percentiles) of the distribution of change in working capital (CWC) scaled by market value for each portfolio are plotted against the median earnings for each portfolio. The change in working capital is defined as the changes in accounts receivables, inventory and other current assets less the changes in accounts payables, taxes payables and other current liabilities.

We propose change in working capital scaled by beginning market values as a second measure of earnings management to avoid the losses. The change in working capital is the change in accounts receivables, inventory and other current assets minus change in accounts payables, taxes payables and other current liabilities. This change in working capital represents short-term measures of accruals. In this method, the firms attempt to manage earnings through non-cash revenue and non-cash expenses such as accounts receivables, inventory, accounts payables, taxes payables and other current assets and current liabilities. Therefore, we propose significantly higher change in working capital during the firm-years of earnings management. As proposed, we find significantly higher change in working capital of the first positive portfolio of 200 firm years right to zero with positive earnings as compared to first portfolio of 200 firms left to zero with negative earnings in **Figure 7**. The higher changes in working capital in the year of earnings management exists in only quartile 3. This indicates a portion of sample firms are involved in earnings management through short-term measures of change in working capital to avoid the losses.

4.3.2.3. Other accruals:

We propose change in other accruals scaled by beginning market values as third measure of earnings management to avoid the losses. The other accruals are defined as profit after tax minus cash from operations and changes in working capital. This other accruals represent long-term measures of accruals. In this method, the firms attempt to manage earnings through non-cash long-term measures of accruals. Therefore, we propose significantly higher other accruals during the firm-years of earnings management. As presented in **Figure 8**, we find small difference between the other accruals of the first positive portfolio of 200 firm years right to zero with positive earnings and other accruals first portfolio of 200 firms left to zero with negative earnings. The other accruals of quartile 1 firms-years in first portfolio right to zero with positive earnings are lower. This indicates that sample firms are not involved in earnings management through long-term measures of accrual to avoid the losses.

Figure 8

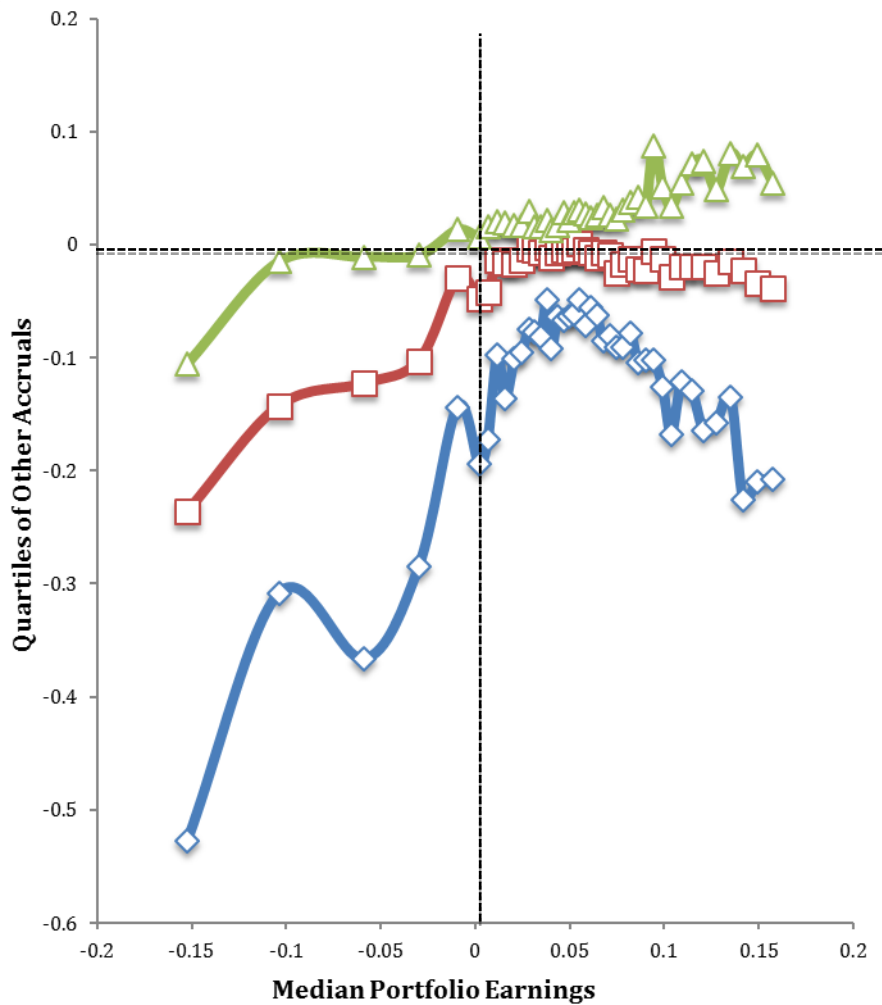


Figure 8. Earnings portfolios of 200 observations each are formed on the magnitude of scaled earnings. Median portfolio earnings on the horizontal axis represent the median earnings for each portfolio. Three quartiles (the 25th, 50th and 75th percentiles) of the distribution of other accruals scaled by market value for each portfolio are plotted against the median earnings for each portfolio. Other Accruals = Profit after Tax – Cash Flow from Operations – Change in Working Capital.

4.4. Robustness:

The robustness of the above results is conducted under different scenarios. Like, as suggested by Roychowdhury (2006), the reported earnings numbers are scaled by beginning total assets and observe similar results. The discussion regarding the appropriate class interval width required for presenting the histogram graph is described by Silverman (1986). Based on that, additional analysis is conducted to check the robustness of the results (see Figure 2) and observe similar results.

5. Conclusions:

The present study examine whether Indian corporations undertake earnings management to avoid earnings losses. The results indicate that Indian corporates adopt earnings management methods to avoid losses. The findings support to the

anecdotal evidence that managers have incentives to avoid losses. The results are consistent with the findings of existing literature. In this study, the evidence suggests that 6% to 18% of the firms with small pre-managed losses exercise discretion to report small earnings. The results are robust to alternative methods like various ways of subdividing the population.

The methods of earnings management to avoid earnings losses are discussed under ex ante and ex post. It is found that, ex ante, these firms have huge current assets and current liabilities. Ex-post, it is observed that there is a huge jump with regard to changes in working capital, cash from operations and other accruals. Thus, concentrating on earnings management to avoid losses, it is found that two components of earnings, cash flow from operations and changes in working capital, have been used to manage earnings. The present study support two theories based on stakeholder's use of information-processing heuristics and prospect theory about the motivation for avoidance of earnings losses. The results of the present study are useful to regulators, investors, financial analysts and financial institutions. Future research can focus on examining whether such earnings discontinuity still exists under the new accounting environment like international financial reporting standards.

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