The State of Earnings Management in India : An Empirical Analysis

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Abstract

Earnings management has become an area of concern after the fall of giant enterprises. The fall of Xerox, Worldcom, Satyam, and Enron posed a threat to investors' confidence. Undoubtedly, countries like India, which are quickly developing, have to be more precise with their corporate governance practices. The Securities and Exchange Board of India (SEBI) mentioned that in India, the average earnings management is 2.9%. In an attempt to estimate the level of earnings management, the study analyzed the earnings management levels across various sectors of the economy. The study attempted to understand the state of earnings management in India for a period of four years (2010-2013) across seven sectors of India. These seven sectors included : (a) hotels, (b) forging, (c) chemical and fertilizers, (d) healthcare, (e) fast moving consumer goods (FMCGs), (f) non-electrical, (g) consumer durables. The study considered a total of 1027 companies for analysis. The study also checked the predictability of the modified Jones model in detecting earnings management for each sector under consideration in this study.

Keywords : **earnings management, Modified Jones model, discretionary accruals, Indian context**

JEL Classification: M410, M420, M490

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The nature of complexities in the financial disclosure of different industries has been posing a big challenge to the investors and regulators, leaving scope for a lot of manipulations. Earnings management has been a consequence of these complexities in the financial disclosure. Earnings management is often referred to as a deliberate act of manipulation for attaining pre-defined objectives. Various accounting techniques like cookie jar, income smoothing, window dressing, and so forth have been used to alter the accounting figures. One of the most cited definitions of earnings management was given by Healey and Whalen (1999). The definition given by Healey and Whalen is, "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" (p. 368). According to Roychowdhury (2006), "Real activities manipulation is a departure from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing that certain financial reporting goals have been met in the normal course of operations" (p. 337).

The study of earnings management gained particular momentum after the Asian financial crisis of 1997.

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Table 1. Sectors and Number of Companies Under Study

Sl No	Sector	Number of Companies
1.	Hotels	142
2.	FMCG	245
3.	Forging	109
4.	Capital Goods-Non Electrical Equipment	298
5.	Chemical and fertilizers	47
6.	Consumer durables	112
7.	Healthcare	74
	Total	**1027**

However, the real focus to this area came when a corporate giant collapse happened in 2002. The fall of energy giant Enron revealed the harmful consequences of ignoring earnings management. The global recession of 2008 has further proven how important it is to understand earnings management and its consequences. Developing countries have to take it more seriously owing to improper corporate governance practices. India has become a popular destination for foreign investors, and that is one of the primary reasons why the study holds particular importance for India. SEBI, in particular, has taken various vigil steps to tighten norms on regulation and consequently, continuous improvements in corporate governance practices have been made. The Clause 49 has been mandated since 2006.

The study of earnings managements has a lot of importance for regulators and proper understanding can reduce information asymmetry in the capital markets, which can substantially help in decreasing the cost of capital. Furthermore, understanding the importance of earnings management incidence can help in protecting the interest of shareholders. One of the important studies on earnings management in the Indian context was undertaken by SEBI. Ajit, Malik, and Verma (2013) stated that in India, average earnings management in non-financial firms was 2.9% of the total assets of these firms. The study that was conducted over the period from 2008-2011 highlighted that the sector with maximum earnings management was construction and mining.

The present study has tried to understand the pattern of earnings management for the period from 2010-2013, which is a more recent time horizon. A total of seven sectors comprising 1027 companies were considered for the study. The sectors with corresponding number of companies are presented in the Table 1.

Some of the sectors considered for this study have made significant contributions in the development of the economy. FMCG, healthcare, hotels, and consumer durables are in the list of the top 20 fastest growing sectors both in terms of revenue as well as employment. The following points illustrate some of the key features of the sectors under study :

- Healthcare is considered to be one of India's largest sectors comprising of various entities such as hospitals, clinical trials, medical devices outsourcing, telemedicine, medical tourism, health insurance, and medical equipment with a market size of USD 65 bn.

- The travel and tourism sector has developed into an industry with an annual economic report of around US$ 6.5 trillion worldwide.

- Considered to be fourth largest sector, the fast moving consumer sector has grown at an annual rate of 11%. The expected growth of India's consumer durables market will be fifth largest in the world by 2025. The production is expected to reach US$ 104 billion by 2016.

- The Indian Forging Industry has evolved over the years as a lead contributor to the manufacturing sector of the Indian economy. Being one of the basic industries and closely linked to the automotive sector, the future aspects of the sector are enthralling, with an expected growth rate of 20%.

↳ Non-electrical machinery comprises of machines/equipments used in various sectors such as material handling equipment (earth moving machinery, excavators, and cranes) and boilers.

Review of Literature

A great amount of literature has appeared in the area of earnings management in the recent years. The occurrence of earnings management and likelihood of not being discovered has been a reason of threat. Schipper (1989) defined earnings management as the purposeful intervention in the external financial reporting process with the intent of private gains. A large number of studies have inspected management's choice of accounting policies. Generally Accepted Accounting Principles (GAAP) has given the option to choose among various methods of reporting income of which accrual management is a popular one.

Mulford and Comiskey (2002) defined earnings management as "an active manipulation of earnings towards a pre-determined target" (p.51). All these studies used the accrual based approach, specifically the modified Jones model which has been very popular among all other accruals approach.

There have been various studies on testing the power of the modified Jones model. Kothari, Leone, and Wasley (2005) concluded that the Jones and modified Jones models both are consistent estimates of measuring discretionary accruals (DA). The studies of Dechow, Sloan, and Sweeney (1995) and Dechow and Skinner (2000) were also of the view that the Jones and modified Jones models could both act as potent tests for earnings management.

Some researchers have now started deploying the use of computing models in detecting earnings management instead of using the accrual method. Chen, Chi, and Wang (2015) examined the earnings manipulation state in biotechnology by incorporating computing models by screening earnings management variables by employing the principal component analysis (PCA) and Bayesian network (BN). The study did not attempt to test the power of the modified Jones model, but instead, ascertained how competent the model was in predicting earnings management across sectors using *r*- square values.

Most of the research studies in the areas of earnings management have focused on developed economies like USA, UK, and Europe. Empirical investigation on the state of earnings management in developing countries has not been examined to a great extent. Few of the research studies in this area have been conducted in the Indian context. Kumari and Pattanayak (2015) examined the trend of earnings management in financial and banking sector. Kaur, Sharma, and Khanna (2014) used the M-score and the modified Jones model for detecting earnings management in India. Kaushal (2013) studied the trend in Indian corporates with regard to earnings management for the time period from 2006-2010. The current study is an attempt to fill the research gap with respect to empirical studies conducted on earnings management in India.

Research Objectives

(1) The broad objective is to ascertain the levels of earnings management in various sectors of the economy.

(2) The study also checks the explanatory power of the modified Jones model for the sectors under consideration.

Data and Methodology

The data for all the sectors were collected from the Capitaline database. The period of the study is for 4 years (2010-2013). The study uses the modified Jones model for detecting earnings management. Discretionary accruals were used as a proxy of earnings management. The modified Jones model was used to calculate the discretionary accrual proportion of earnings management. The equations 1 and 2 have been used in calculation of DA :

Equation 1: Modified Jones Model for TA

$$\frac{TA_t}{A_{t-1}} = \alpha_1 \left(\frac{1}{A_{t-1}}\right) + \alpha_2 \left(\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}}\right) + \alpha_3 \frac{PPE_t}{A_{t-1}}$$

Equation 2: Modified Jones Model for DA

$$\frac{DA_t}{A_{t-1}} = \frac{TA_t}{A_{t-1}} - \alpha_1 \left(\frac{1}{A_{t-1}}\right) + \alpha_2 \left(\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}}\right) + \alpha_3 \frac{PPE_t}{A_{t-1}}$$

$$TA_t = CFO_t - IBX_t$$

where,

TA_t : Total accruals in time period t,
CFO_t : Total assets in time period t,
ΔREV_t : Revenues at time t - Revenues at time t - 1,
ΔREC_t : Receivables at time t - Receivables at time t -1,
PPE_t : Plant, property, and equipment at time t,
DA_t : Discretionary accruals in time period t,
CFO_t : Cash flow from operations,
IBX_t : Income before extraordinary items.

The entire calculations were done using *r* studio and SPSS. The information as per the equations was used for a cross section of companies. The total accruals were estimated by using the equations and were regressed against the explanatory variables as given. The residuals which represent discretionary accruals were calculated by: Real Total Accruals (TA) less predicted Total Accruals. Later, the mean and standard deviation of the accruals were calculated.

Analysis and Results

Discretionary accrual values are studied in both positive and negative directions. The positive value implies that earnings have been pushed upward, while the negative sign implies that earnings have been managed downwards. First, overall averages for each sector were taken individually, which shows that DA values are industry specific. Later, every year maximum and minimum values of sectors under study were calculated.

The sectors with highest positive discretionary accruals are found in FMCG, followed by the non-electrical sector. The sector with unusually negatively low value of discretionary accruals is the non-electrical sector closely followed by FMCG. To sum up, the sectors which need attention in inspection of earnings management are FMCG and non-electrical. The corporate governance practices of these sectors also need to be analyzed properly to understand these findings. Unusually positive and negative levels of DA values signify that these sectors are tampering with their accounts. The sector with relatively low levels of earnings management and least level of fluctuations in discretionary accruals is healthcare, which signifies that the industry has been stable. The healthcare sector is found to have relatively low levels of earnings management along with minimum fluctuation across all years.

The Table 2 shows the average value of discretionary accruals of the sectors under study over a period of 4 years. The values range from a maximum of 10.34 to a minimum value of -10.3109. The values indicate that

Table 2. Average Value of Discretionary Accruals over 4 Years

Ser No	Sector	Number of Companies	Average Discretionary Accrual
1.	Hotels	142	10.34361
2.	FMCG	245	-4.83037
3.	Forging	109	-1.54122
4.	Capital Goods-Non Electrical Equipment	298	0.729378
5.	Chemical and fertilizers	47	-2.54636
6.	Consumer durables	112	-2.14077
7.	Healthcare	74	-10.3109

Table 3. Descriptive Statistics of Discretionary Accruals

Discretionary accruals (years)	Total number of companies	Negative value	Positive value	Mean value	Standard Error
2013	1027	-10.7974908	17.0422013	-0.0254128	0.0335515
2012	1027	-15.2195599	12.9917732	0.0170208	0.0326802
2011	1027	-38.7513996	55.2284927	0.0127770	0.0765849
2010	1027	-17.2272282	13.4588827	-0.0350661	0.0322780

Table 4. Descriptive Statistics of Discretionary Accruals

Discretionary accruals (year)	Std. Deviation	Variance	Skewness	Kurtosis
2013	1.075219773847099	1.156	1.313	95.092
2012	1.047296336561203	1.097	-0.212	108.681
2011	2.454304562050372	6.024	7.464	327.424
2010	1.034406388233877	1.070	-3.477	131.972

Std. Error-0.076 (Skewness), Std. Error-0.152 (Kurtosis)

different sectors have different ranges of discretionary accruals.

The Table 3 shows the negative and positive values of discretionary accruals over the 4 years period. The negative values imply that there has been a downward trend in managing income, while the positive values imply that the earnings have been inflated. The Table 3 implies that the negative values range from -38.75 to a maximum positive value of 55.22. The year 2011 witnessed maximum earnings management levels as it is evident from the range of discretionary accrual values.

The Table 4 shows the skewness, variance, standard deviation, and kurtosis of discretionary accruals over the period of the study. The values clearly depict that discretionary accrual distribution has not followed any normal distribution pattern. The discretionary accrual values do not follow normal distribution and are skewed over the time period under consideration. The negative and positive values of discretionary accruals for every year vary for every sector, and no consistent pattern is observed.

The sector wise maximum positive values, negative values, and median discretionary accrual (DA) values for all the sectors under study for the year 2013 are shown in the Table 5. In the year 2013, the sector with maximum positive earnings management is FMCG and non-electrical sector tends to push earnings downwards. This pattern is observed for almost all the years under study.

The sector wise positive, negative, and median values for all the sectors under study for the year 2011 are shown

Table 5. Sector Wise Positive, Negative, and Median Values : 2013

Sectors / DA values	Consumer Durables	Chemical &Fertilizers	Non- Electrical	FMCG	Forging	Healthcare	Hotels
Negative	3.4359	3.9189	9.0218	5.3985	1.5045	0.87867	0.58417
Median	-0.0917	0.0398	0.0611	-0.0440	-.1697	0.01543	0.00836
Positive	6.8477	1.6200	4.1355	16.5721	3.6481	1.82733	0.82106

Table 6. Sector Wise Positive, Negative, and Median Values : 2012

Sectors / DA values	Consumer Durables	Chemical & Fertilizers	Non Electrical	FMCG	Forging	Healthcare	Hotels
Negative	1.56899	0.9078	10.6128	6.0685	1.75836	1.12152	0.38788
Median	-0.02252	0.00331	-0.0312	-0.0581	-0.01558	-0.01177	-0.03133
Positive	2.32895	0.72229	9.0361	5.2831	1.68109	1.1659	1.20767

Table 7. Sector Wise Positive, Negative, and Median Values : 2011

Sectors/DA values	Consumer durables	Chemical &Fertilizers	Non Electrical	FMCG	Forging	Healthcare	Hotels
Negative	1.98546	1.03598	3.4403	10.1561	1.62803	1.2793	13.5847
Median	-0.07877	-0.01534	0.0098	-0.0799	1.62803	-0.01344	0.195
Positive	2.59045	0.48083	4.7693	6.4547	0.42541	1.29822	7.3409

Table 8. Sector Wise Positive, Negative, and Median Values : 2010

Sectors/DA values	Consumer durables	Chemical & Fertilizers	Non Electrical	FMCG	Forging	Healthcare	Hotels
Negative	1.4605	2.3915	10.5481	11.0093	4.9785	1.56452	1.60872
Median	-0.0421	-0.0933	0.0489	-0.0445	0.0733	0.02688	-0.00044
Positive	4.5627	9.5413	2.6709	4.4175	0.676	0.76189	1.93044

Table 9. Companies with Maximum Amount of Discretionary Accruals

Year	Company	Sector	Maximum values
2013	Cepham Milk Specialities Ltd	FMCG	17.0422013
2012	Apex Intertech Ltd	Non-electrical	12.99177318
2011	Woodside Parks Ltd	Hotel	55.22849269
2010	TriveniStructurals Ltd	Non-electrical	13.45888274

The sector wise maximum positive values, negative values, and median discretionary accrual (DA) values for all the sectors under study for the year 2012 are shown in the Table 6. The Table 6 shows the values for the year 2012, where FMCG shows a consistent pattern of inflating income similar to the year 2013. The same trend of deflating income is seen for the non-electrical sector also.

Table 10. Companies with Unusual Negative Values of Discretionary Accruals

Year	Company	Sector	Negative values
2013	UT Ltd.	Non-electrical	-10.79749079
2012	TTG Industries Ltd.	Non-electrical	-15.21955985
2011	Digiflex India Ltd.	Healthcare	-38.75139961
2010	Peirce Leslie Cashews & Coffee Ltd.	FMCG	-17.2272282

in the Table 7. This was the only year when extreme fluctuations happened for the hotel sector. For all the other years, the hotel industry witnessed a stable pattern for DA in the range of 2 to negative values of -1. This is the only year where the DA values range from a negative of -13.58 to positive of +7.34. The sector wise positive, negative, and median values for all the sectors under study for the year 2010 are shown in the Table 8.

As can be inferred from the Tables 7 and 8, the patterns of earnings management remains consistent only for two of the sectors : FMCG and non-electrical. Although no consistent pattern is observed, but FMCG and the non-electrical sector witnessed maximum fluctuations. Even the maximum and minimum values lie in these sectors. It is also observed that for service sectors, DA values do not fluctuate abnormally or with a high range, while sectors that have inventories like FMCG and non-electrical seem to be more engaged in manipulating their earnings for the years under study. The pattern of fluctuation in DA (both positive and negative) across all the years under study for FMCG and non-electrical remained consistent. This gives us an opportunity for further study in the area of inventory management and earnings management association.

The Table 9 lists the companies which have the highest positive values of discretionary accruals in each year along with the sector. The Table 10 lists the companies which have unusual negative values of discretionary accruals in each year along with the sector.

This section deals with obtaining the *r*- squared values of the model in which the predictors are changes in revenues (from previous year t -1 to current year t) and gross assets (plant property and equipment without deducting depreciation). In this part, we would be checking the predictability of the modified Jones model for each sector. We use multiple *R*-squared value and adjusted R-squared value. The more the values of *r* square, the better is the predictor used in the model.

On the basis of *r*-squared and adjusted *r*-squared value, the predictor values are not effective for the FMCG sector as for all the 4 years considered in the analysis, the value remains low. The same happens with the non-electrical sector where the values remain comparatively low. Another significant aspect to be noticed here is that these two sectors have abnormally high and low (in terms of positive and negative) discretionary values. For every year, the *r*-squared values have shown significant changes. Over the years, fluctuations have been massive. For hotels, consumer durables, chemicals and fertilizers, it is difficult to comment whether the model is appropriate or not. However, for the healthcare sector, the *r*-squared values are significant. This means that the model has been able to predict the values of DA considerably fairly for the healthcare sector.

Another important finding is that the business cycle has a strong influence on affecting discretionary accruals. It significantly affects the economy, and thus, the companies manage the earnings management as per the economic conditions. For the year 2010, soon after the global recovery, the model has a relatively low level of *r*-square values for all the sectors. The trend has been same for the entire sector in this particular year, stating that economic conditions have a strong influence on the earnings management patterns of the companies.

The trends for the values do not have any consistency. There is no consistent pattern observed for the values, although at times , the values are significant. As discussed, the time period of the study is also crucial. The time period of this study is end of recession to a recovery phase, which encompasses two different business cycles. This proves to be a complicated part as we could not comment on the capability of prediction of the modified Jones

Table 11. *R*-Square Values for the Year 2013

Sectors	Consumer Durables	Chemicals & Fertilizers	Non-electrical	FMCG	Casting, Forging, & Fasteners	Healthcare	Hotels
Multiple *R*-squared value	0.2226	0.2998	0.5333	0.03036	0.2644	0.9294	0.0646
Adjusted *R*-squared value	0.2011	0.2509	0.5285	0.01834	0.2433	0.9263	0.04426
p-value	5.036×10^{-6}	0.001439	$< 2.2 \times 10^{-16}$	0.05819	4.338×10^{-7}	$< 2.2 \times 10^{-16}$	0.02616

*Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '' 1

Table 12. *R*-Square Values for the Year 2012

Sectors	Consumer Durables	Chemicals & Fertilizers	Non-electrical	FMCG	Casting, Forging, &,Fasteners	Healthcare	Hotels
Multiple *R*-squared value	.07108	0.9216	0.4206	0.4999	0.3251	0.8554,	0.4144
Adjusted *R*-squared value	0.04528	0.9161	0.4147	0.4937	0.3058	0.8492	0.4017
p-value	0.04602	$< 2.2 \times 10^{-16}$	$< 2.2 \times 10^{-16}$	5.19×10^{-9}	0.0001438	$< 2.2 \times 10^{-16}$	5.641×10^{-16}

Table 13. *R*-Square Values for the Year 2011

Sectors	Consumer Durables	Chemicals &Fertilizers	Non-electrical	FMCG	Casting, forging, & fasteners	Healthcare	Hotels
Multiple *R*-squared value	0.8419	0.7126	0.0423	0.5005	0.4341	0.9968	0.8561
Adjusted *R*-squared value	0.8375	0.6925	0.03253	0.4943	0.4179	0.9967	0.8529
p- value	$< 2.2 \times 10^{-16}$	1.033×10^{-11}	0.005264	$< 2.2 \times 10^{-16}$	5.742×10^{-13}	$< 2.2 \times 10^{-16}$	$< 2.2 \times 10^{-16}$

Table 14. *R*-Square Values for the Year 2010

Sectors	Consumer Durables	Chemicals &Fertilizers	Non-Electrical	FMCG	Casting, forging, & fasteners	Healthcare	Hotels
Multiple *R*-squared value	0.02861	0.004868	0.5908	0.3427	0.0781	0.2851	0.4032
Adjusted *R*-squared value	0.001626	-0.06456	0.5866	0.3346	0.05175	0.2545	0.3902

model. For a sector in a year, it sometimes shows unusually low *r*-squared values while for the same sector, the *r*-squared values become significant. The *r* square values are obtained with the predictors' plant, property, equipment, and revenue scaled by lagged total assets.

The Table 11 shows the *r*-square values for the year-2013. The healthcare sector has significant *r*-squared values for the year 2013, while for all other sectors, the *r* - values are low. The Table 12 gives the *r* - square and adjusted *r* -squared values for the year 2012. The healthcare sector and chemical and fertilizer sectors both show significant *r* - values. For other sectors also for the year 2012, the *r* - values remain relatively high in comparison to the year 2013. The Table 13 depicts the *r* - square and adjusted *r* - squared values for the year 2011. The healthcare sector, hotels, consumer durables, and chemical and fertilizer sector show significant *r* - values. The Table 14 depicts the *r* -square and adjusted *r* - squared values for the year 2011. This year did not have any significant values when compared to other years under study. For the year 2010, the *r* - squared values are not significant for any of the sectors. These findings suggest that we cannot completely rely on the predictability of the modified Jones model.

The findings of the present study are similar to the findings of Chen (2010), where he tested the predictability of Jones and the modified Jones model and concluded that, although the modified Jones model is better than several other models for detection of earnings management, but the power of the model may not be equitably compatible for all economies. For developing economies, there is a scope for development of better models. Islam, Ali, and Ahmad (2011) also concluded that for developing economies, the modified Jones model was not the best model for detection of earnings management. Alareeni and Aljuaidi (2014) compared Yoon's model with Jones model and found that Jones model was less suited for the Palestine exchange.

Research Implications

The paper empirically examines the state of earnings management in India. The paper fills the literature gap in the area of earnings management. The presence of discretionary accruals is self-confirmatory that earnings management is present in almost all the sectors under consideration. Whether this is harmful or is a result of industry trend, we cannot comment on that. However, the extreme values are definitely surprising. The factors attributable to these extreme values of discretionary accruals can be taken up in future research studies. While analyzing the data, we observed that the extreme values were present in companies that did not have a very large scale of operation. This area can also be considered in case of future studies. The paper also tests the power of the modified Jones model in detecting earnings management for each sector across the period considered for the study. Undoubtedly, the modified Jones model is a powerful accrual based model, but in the context of developing countries, it may not be suitable for all the sectors. A better predictor is required for these sectors. The paper does not yield the reasons as to why organizations indulge in earnings management. Hence, the corporate governance practices of these industries also need to be studied.

The most important contribution of this study is that it confirms the presence of earnings management on such a massive scale. Even though many stringent norms have been laid down , however, the corporates are still engaging in earnings management, which is a serious concern. The patterns of earnings management in case of the FMCG sector and the non-electrical sector need special attention because of unusual trends in these sectors. The present paper is unique as it has considered various sectors which were not considered in prior studies. Studies can also be conducted in small capital companies where corporate governance in not mandatory.

Limitations of the Study and the Way Forward

The study has considered a time period of only 4 years, which is comparatively a very small time span. To properly analyze the trends in the patterns of earnings management, past years should also be studied ; 2010-11 was the recession year and the later periods have been a recovery phase; the pressure to perform affected all sectors, which may have a bearing on the findings of the study. In addition, the study has completely relied on the availability of secondary data, and hence, the accuracy of the study depends on the accuracy of the secondary data.

Future studies can be conducted by considering data of a relatively longer period of time. For the sectors with unusual patterns of earnings management, several other attributes should be studied, which can give a lot of insights in understanding the earnings management of the industry. It would be further interesting to see their corporate governance practices and their relationship with earnings management. In the wake of the revised Clause 49 and the New Companies Bill, the relationship of corporate governance attributes and earnings management can give many new insights. It would also be interesting to see how good are the new models in developing economies' context, which imply neural network and artificial intelligence.

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