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THE IMPACT OF FIRM CHARACTERISTICS ON EARNINGS MANAGEMENT: A STUDY OF FIRMS LISTED IN INDIA

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Abstract *This study examines the impact of firm characteristics on earnings management (EM) using a sample of listed non-financial firms in India. First, we take a comprehensive perspective to estimate EM focusing on total accruals, current accruals and specific accruals. Second, we examine firm characteristics such as size, leverage, performance, growth opportunities and industry membership that are potentially related to accruals EM. We find that: 1) Large firms and firms with high performance have higher accruals quality. 2) Firms with higher growth opportunities have lower accruals quality. 3) Firms with high leverage use accruals EM to avoid violation of debt covenants. These findings indicate that investors and regulators should take into account both: the abnormal accruals over a period of time and the variability of abnormal accruals to analyse the quality of financial reporting of large firms, firms with high performance and highly levered firms.*

Keywords: *Accruals Earnings Management, Earnings Management, Earnings Quality, Quality of Financial Reporting, Firm Characteristics*

INTRODUCTION

The accounting frauds at renowned firms like Enron, WorldCom, Tyco and Satyam shook the global markets. These firms used various earnings management (EM) techniques like inflating revenues, channel stuffing, inappropriate revenue recognition, misuse of off-balance sheet items and overstating profits to misrepresent the financial statements and firm performance. Such instances of accounting frauds and managerial opportunism make investors and regulators wary of the quality of financial reporting.

Financial reporting is considered the most important medium of communication between the firm and the external world. It plays an important role in contracting decisions, valuation of firms and efficient functioning of capital markets (Watts & Zimmerman, 1986; Bushman & Smith, 2001). The two primary objectives of financial reporting as defined by the Conceptual Framework of International Accounting Standards Board, Financial Accounting Standards Board and Ministry of Corporate Affairs, Government of India are: *'(1) enabling the user to better predict future cash flows and (2) analyzing the efficiency and effectiveness of management stewardship.'* These objectives stem from the decision-based model approach to accounting theory (Wolk, Dodd & Rozycki, 2008).

Financial reporting information in any country is the result of the accounting regime it follows. Based on the accounting regime, a country develops accounting standards to generate and disclose financial reporting information like earnings and net assets. These accounting standards can be rule-based or principle-based or a mix of both. Under both types of accounting standards, the preparers of accounting information have discretion over accounting choice in varying degrees. This discretion affects accruals and thus earnings and net assets. Earnings is viewed as an important barometer in the stock markets (Chakraborty & Chetan, 2018) and thus firms should use discretion to convey decision-useful information. But such discretion can be used opportunistically to misrepresent earnings. This discretion is the source of EM opportunities. Thus, EM result in abnormal accruals, reduce the decision usefulness of reported earnings and mars the quality of financial reporting.

There are several firm-level and country-level factors that affect EM. Firms in the same country are subject to the same regulations, but they operate in different conditions. These conditions have a bearing on the exercise of discretion over

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accounting choices and thus EM (ParteEsteban & Ferrer-Garcia, 2014). EM (abnormal accruals) are not only the result of intentional misuse of accounting discretion but also unintentional errors in the estimation of accruals. The accuracy of estimating accruals is systematically related to firm characteristics (Dechow & Dichev, 2002). Various proxies of EM are related to the firm characteristics (Dechow, Ge & Schrand, 2010; Leuz & Wysocki, 2016). Thus, firm characteristics influence EM.

This study attempts to examine the relationship between firm characteristics and accruals EM for a sample of non-financial listed firms in India. For emerging economies like India, financial reporting is considered an important infrastructure as it mitigates the informational problems arising during the evaluation of investment opportunities in these economies (Saudagarn & Diga, 1997). Thus, it is vital to give more attention to the quality of financial reporting to sustain investor confidence in such economies. Moreover, the trading volumes and number of listed companies in India have increased over the years. But the proportion of market capitalisation to gross domestic product (GDP) is quite lower than the global average and retail investors constitute a very small proportion of stock ownership (ASSOCHAM, 2020).

There is a huge potential for attracting more and more retail investors to the Indian capital markets and scale up the market capitalisation to GDP ratio at par with the global average. Faithfully represented financial reporting information will play a vital role in this regard. In accounting research, the extent of EM is considered an important parameter to assess the faithful representation of information and thus the quality of financial reporting. According to a study of non-financial listed firms in India by Ajit, Malik and Verma (2013), small firms engage in more EM in comparison to medium and large firms. All these firms are under the ambit of the same regulatory framework but their operating environments are different. The operating environment consists of firm-specific characteristics. These characteristics impact the extent of EM. Thus, exploring the relationship between firm characteristics and EM can provide vital insights to investors and regulators.

The remainder of the paper is organised as follows: Section 2 discusses literature review and hypotheses development, section 3 presents the research methodology, section 4 discusses analysis and findings and section 5 concludes the study.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The literature relevant to this study is divided into two sections. The first section focuses on EM and the second section focuses on the relationship between firm characteristics and EM.

Earnings Management

According to Healy and Wahlen (1999), "*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*."

The earnings reported in financial statements are the result of the accrual basis of accounting. Accruals indicate an entity's capacity to produce favourable cash flows (Beaver, 1998) and are more valuable in assisting investors, creditors and others in assessing the amount, timing and uncertainty of cash flows (FASB, 1978; Statement of Financial Accounting Concepts No. 1). Thus, the use of accrual accounting is consistent with the primary objective of financial reporting. Accrual basis requires the firm's management to make use of specific estimates and assumptions based on industry practices, nature of the business, firm's operations and experience. These estimates and assumptions affect the recognition, measurement and disclosure of transactions and, thus, net assets and earnings. These accruals can either reveal decision-useful information or conceal the actual performance of the firm. Therefore, the extant literature has distinguished between normal and abnormal accruals (Dechow et al., 2010). These abnormal accruals are popularly referred to as EM in the accounting literature.

Normal accruals are the result of the fundamental performance of the reporting entity. Abnormal accruals may be the result of the opportunistic use of the accounting rules (EM) or unintentional estimation errors in measurement. The estimation accuracy of accruals depends on firm characteristics (Palepu, Healy & Bernard, 2000). In the case of the misestimation of accruals, earnings will not help in predicting future cash flows (Verdi, 2006). It is also possible that managers use accruals opportunistically to window-dress financial statements and mislead users. In either case, the beneficial role of accruals reduces (Dechow & Dichev, 2002). Thus, the abnormal accruals reduce the decision usefulness of reported earnings and thereby reduce the quality of financial reporting.

Empirical research in accounting has developed regression models to decompose total accruals into normal and abnormal accruals. Table 1 provides an overview of these models.

Table 1: Models Used to Estimate Discretionary Accruals

Sr. No.	Accrual Model	Model Specification	Explanation
1	Healy (1985)	$ACC_t = NDA_t + DA_t$ $NA_t = TA_t / T$	Accruals are defined as the difference between reported earnings and cash flow from operations. Accounting earnings are decomposed into cash flow from operations (C_t), non-discretionary accruals (NDA_t), and Discretionary accruals (DA_t). Total accruals (ACC_t) include discretionary as well as non-discretionary accruals. Non-discretionary accruals are calculated as mean total accruals (scaled by lagged assets) of the estimation period.
2	DeAngelo (1986)	$NDA_t = TA_{t-1}$	Non-discretionary accruals are measured by using the previous year's total accruals (scaled by lagged assets). This means that the estimation period is restricted to the previous year.
3	Jones (1991)	$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t)/A_{t-1}$ $ACCt = \alpha + \beta_1 (\Delta REV_t) + \beta_2 (PPE_t) + e$ The following equation is used to estimate firm-specific parameters α, β_1, β_2 $TA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t) + e$	This model takes into account firm-specific factors. Discretionary accruals are modeled as a function of revenue growth and PPE. The second model is used in the estimation period to calculate firm-specific parameters.
4	Industry Model (Dechow and Sloan, 1991)	$NDA_t = \gamma_1 + \gamma_2 \text{ median}_I (TA_t)$ $\text{Median}_I (TA_t)$ = Median value to TA of firms within same 2 digit SIC code	It is based on the assumption that variations in determinants of non-discretionary accruals are the same across all the firms in the same industry.
5	Modified Jones Model (Dechow et al., 1995)	$ACCt = \alpha + \beta_1 (\Delta REV_t - \Delta REC_t) + \beta_2 (PPE_t) + e$ The following equation is used to estimate firm-specific parameters α, β_1, β_2 $TA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t) + e$	Jones model assumes that no discretion is exercised over revenues in the estimation period or event period. The original Jones model is modified to adjust the change in revenues for change in receivables.
6	Dechow and Dichev (2002)	$\Delta WC = \alpha + \beta 1 \, CFO_{t-1} + \beta 2 \, CFO_t + \beta 3 \, CFO_{t+1} + e$	The model measures accruals quality by the extent to which working capital accruals can map into operating cash flow realisations. Considering the timing of cash flow recognition in earnings, accruals are modeled as a function of past, present, and future cash flows.
7	Performance matched measure (Kothari, Leone & Wasley, 2005)	Performance matched discretionary accruals = DA estimated using Jones model for firm i in year t – DA estimated using Jones model for the matched firm in year t	They use a control sample approach to estimate discretionary accruals. Performance matched accruals are calculated as the difference between the accruals of the firm and matched firm. Accruals are estimated using the Jones model. The firms are matched based on 2 digit SIC code and return on assets.
8	Discretionary estimation errors (Francis, LaFond, Olsson & Schipper, 2005)	$TCA_t = \alpha + \beta_1 \, CFO_{t-1} + \beta_2 \, CFO_t + \beta_3 \, CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 \, PPE_t + e_t$	Accruals quality is estimated using Dechow & Dichev model. It is augmented by the fundamental variables of the modified Jones model. Accruals quality is decomposed into innate and discretionary accruals.

Source: Author's compilation.

Firm Characteristics and Accruals EM

Firms in the same country are subject to the same regulations, but they operate in different conditions. These conditions have a bearing on accounting choices and EM (Parte-Esteban & Ferrer-Garcia, 2014). Various proxies of EM are related to the economic characteristics as the accounting system captures economic performance (Dechow et al., 2010; Leuz & Wysocki, 2016).

Dechow and Dichev (2002) found a systematic relationship between accruals quality and firm characteristics. They found a negative association between accruals quality and the absolute magnitude of accruals, the length of the operating cycle, loss incidence and the standard deviation

of sales, cash flows, accruals, while a positive association with firm size. Based on their findings, Francis et al. (2005), disentangled their measure of accruals quality into innate and discretionary components, whereby the innate components are firm characteristics. According to Francis, Nanda and Olsson (2008), one of the major sources of EM is innate sources like the business model, operating risk and operating environment of a firm. Thus, the extent of EM depends on firm characteristics.

The extant literature has used various proxies to capture firm characteristics. In a review by Dechow et al. (2010), the discussion on firm characteristics is based on the firm performance, leverage, size, growth and investment. Bowen, Rajgopal and Venkatachalam (2008) used firm size, leverage, growth opportunities, risk, performance and stakeholder claims as economic determinants of accounting discretion. Suberi, Hsu and Wyatt (2012) used firm life cycle stages as a proxy for the firm's economic characteristics. Parte-Esteban and Ferrer-Garcia (2014) examined EM in the hospitality sector and used market-specific variables, business strategy, ownership structure and audit function as firm characteristics.

Following Dechow et al. (2010), we focus on firm characteristics such as firm size, leverage, firm performance, growth opportunities and industry membership.

Firm Size

According to the review by Holthausen and Leftwich (1983), firm size and leverage are the significant variables explaining the choice of accounting method and are essential from the contracting perspective. Firm size is also used as a proxy for political costs (Dechow et al., 1995; Warfield, Wild & Wild, 1995) and information asymmetry (Siregar & Utama, 2008). Information about large firms is publicly available at lower costs (Bhattacharya, 2001) and they are more subject to scrutiny by the regulator. Thus, they are less likely to manage earnings. It is also expected that large firms make small errors in accruals estimation as they have stable and predictable operations (Dechow & Dichev, 2002). Thus, there is a negative relationship between firm size and EM. However, contradicting evidence also exists in the literature. Moses (1987) and Michelson, James and Charles (1995) find that large firms are more likely to manage earnings. Income smoothing is more prevalent in large firms than in small firms (Albrecht & Richardson, 1990), and small firms have more likelihood to manage earnings to avoid small losses (Lee & Choi, 2002). Since contradicting views exist in literature we hypothesise as follows:

H1: There is a relationship between firm size and EM.

Leverage

Leverage indicates the proportion of debt in the capital structure. It is used as a proxy for debt covenants (contracting variable). It indicates a trade-off between tax shield and bankruptcy costs (Parte-Esteban & Ferrer-Garcia, 2014). It also indicates the risk and thus influences accounting policies (Francis, LaFond, Olsson & Schipper, 2004). However, according to the debt covenant hypothesis, the extent of EM increases with the increase in leverage as managers try to avoid the violation of debt covenants (Watts & Zimmerman, 1990; Beneish & Press, 1993; Chen & Wei, 1993). Thus, there is a positive relationship between leverage and EM. From the agency perspective, the firms with more leverage will incur more monitoring costs. This increases the demand for a higher quality of financial reporting information (Grossman & Hart, 1982). Thus, there is a negative relationship between leverage and EM. If the debt holders use financial information as complementary information, reporting quality should be higher and if they use substitute sources for monitoring information, reporting quality may be lower (Cohen, 2003). Thus, EM is expected to be related to leverage (Leftwich, 1981). We hypothesise as follows:

H2: There is a relationship between leverage and EM.

Firm Performance

The extant literature has examined whether firms engage in EM practices to improve earnings. Bartov, Givoly and Hayn (2002) documented that firms engage in EM to meet or beat earnings targets. Firms may resort to EM to maintain a persistent trend to positive earnings. Poor performance is one of the major incentives to engage in EM (DeFond & Park, 1997; Keating & Zimmerman, 1999). But consistent poor performance can limit the EM opportunities (DeAngelo, DeAngelo & Skinner, 1994). Moreover, there exists a correlation between accruals and firm performance, especially in the case of firms with unusual performance (Kothari et al., 2005). Thus, we hypothesise as follows:

H3: There is a positive relationship between firm performance and EM.

Growth Opportunities

Firms with growth opportunities are penalised by the stock market when they miss the earnings target (Skinner & Sloan, 2002; Roychowdhury, 2006). This strong negative reaction may provide an incentive to firms with growth opportunities to meet earnings targets by using EM (Hao, Sun & Yin, 2019). There is a negative relationship between growth

opportunities and EM due to measurement error in earnings and availability of EM opportunities (Dechow et al., 2010). Thus, we hypothesise as follows:

H4: There is a negative relationship between growth opportunities and EM.

Industry Membership

The EM practices vary in manufacturing and non-manufacturing industries. Roychowdhury (2006) finds that firms in manufacturing industries are more likely to engage in EM activities. Ajit et al. (2013) conducted a SEBI DRG study and found that the magnitude of EM was higher in the manufacturing and service sectors in comparison to the trading sector. However, there is a lack of evidence on the direction of the relationship between industry membership and EM. Thus, we hypothesise as follows:

H5: There is a relationship between industry membership and EM.

RESEARCH METHODOLOGY

Variables

Table 2: Measurement of Variables

Variable	Measurement	Abbreviation	Select previous studies
Accruals EM	Total accruals models	EM	Biddle, Hilary and Verdi (2009), Hope, Thomas and Vyas (2013), Beuselinck, Blanco and Garcia Lara (2017), Beuselinck and Manigart (2007)
	Current accrual model		
	Specific accrual model		
Firm Size	Log of total assets	SIZE	Siregar & Utama (2008), Cohen and Zarowin (2010)
Leverage	Total debt/total assets	LEV	Feng, Gramlich and Gupta (2009), Cohen & Zarowin (2010)
Firm Performance	Return on total assets	ROTA	Cohen and Zarowin (2010)
Growth Opportunities	Market to book ratio	P_B	Cohen and Zarowin (2010)
Industry Membership	Dummy variable, 1 if Manufacturing firm, 0 otherwise (Firms with NIC code from 10 to 33 are manufacturing firms and others are non-manufacturing).	IND_MEM	Roychowdhury (2006)

Source: Author's compilation.

Empirical Models

The study requires the estimation of accruals EM. We use the below explained five models to estimate accruals EM. Of these, three are total accruals models, one is the current accruals model and one is a specific accrual model.

Table 3: Models Used to Estimate EM

Sr. No.	Accruals EM	Author/s	Model
1	Total accrual models	Jones (1991)	$TACC_{i,t}/TA_{i,t} = \alpha_0 + \alpha_1 (1/TA_{i,t}) + \beta_1 (\Delta S_{i,t}/TA_{i,t}) + \beta_2 (PPE_t/TA_t) + \varepsilon_t$
		Dechow et al. (1995)	$TACC_{i,t}/TA_{i,t} = \Delta\alpha_0 + \alpha_1 (1/TA_{i,t}) + \beta_1 (\Delta S_{i,t} - AR_{i,t}/TA_{i,t}) + \beta_2 (PPE_{i,t}/TA_{i,t}) + \varepsilon_t$
		Kasznik (1999)	$TACC_{i,t}/TA_{i,t} = \alpha_0 + \alpha_1 (1/TA_{i,t}) + \beta_1 (\Delta S_{i,t}-AR_{i,t}/TA_{i,t}) + \beta_2 (PPE_{i,t}/TA_{i,t}) + \beta_3 (\Delta CFO_{i,t}/TA_{i,t}) + \varepsilon_t$
	Current accrual model	Francis et al. (2005)	$TCACC_{i,t}/TA_{i,t} = \alpha_0 + \beta_1 (CFO_{i,t-1}/TA_{i,t}) + \beta_2 (CFO_{i,t}/TA_{i,t}) + \beta_3 (CFO_{i,t+1}/TA_{i,t}) + \beta_4 (\Delta S_{i,t}/TA_{i,t}) + \beta_5 (PPE_{i,t}/TA_{i,t}) + \varepsilon_t$
	Specific accrual (discretionary revenues) model	McNichols & Stubben (2008)	$\Delta AR_{i,t}/TA_{i,t} = \alpha_0 + \beta_1 (\Delta S_{i,t}/TA_{i,t}) + \varepsilon_t$

Note: Δ = indicates the change from the previous year

$_t$ = indicates the current year

$_{t-1}$ = indicates previous year

$_{t+1}$ = indicates next year

$\mathbf{TACC}_{i,t} = \Delta\mathbf{CA}_{i,t} - \Delta\mathbf{CL}_{i,t} - \Delta\mathbf{CASH}_{i,t} + \Delta\mathbf{STD}_{i,t} - \mathbf{DEP}_{i,t}$

TACC = total accruals;

CA = current assets;

CL = current liabilities;

CASH = cash and cash equivalents;

STD = short term debt included in current liabilities;

DEP = depreciation expense;

TA = average total assets;

$1/TA_t$ = scaled constant;

$\mathbf{TCACC}_{i,t} = \Delta\mathbf{CA}_{i,t} - \Delta\mathbf{CL}_{i,t} - \Delta\mathbf{CASH}_{i,t} + \Delta\mathbf{STD}_{i,t}$

TCACC = total current accruals;

S = sales revenue; PPE = plant, property, and equipment;

AR = account receivables;

CFO = cash flow from operating activities

Source: Author's compilation.

The above-mentioned regressions models are run for each industry-year group separately. Two-digit NIC codes are used to define industries[1]. Such industry-year regressions produce firm-specific and year-specific residuals. These residuals are our measure of EM.

Jones (1991) model takes into account firm-specific factors. Discretionary accruals are modelled as a function of revenue growth and PPE. Jones (1991) assumes that no discretion is exercised over revenues, but this assumption is unlikely. Thus, the original Jones model is modified by Dechow et al. (1995) to adjust the change in revenues for change in receivables. Kasznik (1999) extends Jones (1991) and Dechow et al. (1995) model to include the change in operating cash flows as an explanatory variable because operating cash flows and total accruals are negatively correlated (Dechow, 1994).

Subsequently, Dechow and Dichev (2002) proposed a model mapping current, past and future operating cash flows to current accruals. Francis et al. (2005) augmented Dechow and Dichev (2002) model by fundamental variables: change in sales revenues and plant, property and equipment. It measures total accruals quality as the standard deviation of residuals over year t–t-4 (5 years). The standard deviation of residuals is the inverse measure of accruals quality. Thus, the higher the standard deviation, the lower the accruals quality and earnings quality. We also consider specific accruals, like discretionary revenues, to observe discretion exercised over specific accruals.

We estimate the following regression equation separately for each type of EM to examine the relationship between EM and firm characteristics. We use age as a control variable.

$$EM_{it} = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1 FC_{it} + \boldsymbol{\beta}_2 Controls_{it} + \boldsymbol{\varepsilon}_t$$

[1] We use National Industrial Classification 2008 classification, which is identical to the International Standard Industrial Classification – Revision 4 in structure up to 4-digit level.

Scope of the Study

The scope of this study is limited to firms listed on the Bombay Stock Exchange (group A & B firms). The listed firms are accountable to the shareholders and stakeholders at large, and they use financial statements to communicate firm performance and stewardship. Unlike public firms, private firms are not accountable to the public at large. Thus, listed firms have substantial incentives to report informative earnings than unlisted firms (Burgstahler, Hail & Leuz, 2006).

Sample and Time Frame

The criteria for selecting a sample from the firms listed on BSE are as follows:

- Exclusion of financial institutions, insurance firms and utility firms. These are firm years with NIC codes 64, 65, 66 and 35.
- The firm years having different financial year ending than March 31 are excluded from the sample to ensure comparability.
- Firm years with negative assets and sales are eliminated.
- We exclude the firm years for which the required data is not available.
- Minimum Observations: For estimation of EM, we run industry-year regressions. We require at least ten observations for each industry-year grouping (Francis et al., 2005). We exclude the grouping not meeting this criterion.

Initially, data were retrieved for all BSE-listed firms from 2002 to 2016, and the above criteria were applied to it. Cash flow is a vital component to estimate EM in our study. The Accounting Standard 3 for cash flow statements was revised and has been effective from the accounting period commencing on or after 1st April, 2001. Thus, we have data available from the financial year ending on 31st March, 2002. For EM estimation, we have to use lag CFO and calculate the standard deviation for t–t-4 years. Thus, we begin our time frame from the financial year ending on 31st March, 2007.

We end the time frame at the financial year ending on 31st March, 2015. We do not include the financial year ending on 31st March, 2016 as EM estimation requires the use of a lead CFO. The reason we do not include the financial year ending on and after 31st March, 2017 is the introduction of Indian Accounting Standards (Ind AS), which are IFRS convergent. According to Coelho, Galdi and Lopes (2017), merging data as per IFRS and the old accounting standards can create a potential ambiguous effect in EM estimation due to IFRS.

Table 4 shows criteria-wise firm years eliminated from the total data retrieved. For the final analysis, firm-years of BSE group A and B firms are used.

Table 4: Sample Selection

Criteria	No. of Firm Years
Initial sample (retrieved)	76414
Less: Financial and insurance firms (NIC code: 64, 64, and 66)	(15870)
Less: Utility firms (NIC code 35)	(375)
Less: Firm years with the change in the fiscal year-end	(11561)
Less: Firm years with data less than 12 months	(943)
Less: Firm years with negative sales/assets	(525)
Firms years (all BSE listed firms)	47140
Firms years (BSE group A & B firms)	15470

Source: Author's calculation.

ANALYSIS AND FINDINGS

The analysis is conducted in two steps. In the first step, we estimate EM from 2003 to 2016. Due to the different estimation requirements for different EM models, firm-year observations vary from 8983 to 10855. In the second step, we examine the relationship between firm characteristics and EM for a period of 2007–2015. For step 2, the firm-year observations vary from 5931 to 7383 for different EM models.

Data Source

The data required for analysis is extracted from the Prowess database of the Centre for Monitoring Indian Economy. This database has been used by several empirical studies on corporate sectors of India like Khanna and Palepu (2000), Sarkar, Sarkar and Sen (2008), and Nagar and Sen (2016).

Table 5: Descriptive Statistics

Variable	N	Mean	Median	Standard Deviation	Minimum	Maximum
Total Assets (in Rs. Crore)	9810	2543.63	516	7769.59	4	76596
CFO (in Rs Crore.)	9534	182	26	662.99	-583	6962
PAT (in Rs. Crore)	9744	113.89	17	532.26	-968	5155
Size	9810	6.26	6	1.91	0	13
Lev	9708	0.57	0.56	0.32	0.009	2.42
ROTA	9669	5.03	4	8.36	-35	44
P_B Ratio	8373	2.13	1	2.88	0	22
Age	9809	29.74	24	20.66	0	152
Industry Membership	9811	Manufacturing (proportion): 60.56% (5942)		Non-Manufacturing (proportion): 39.44% (3869)		

Source: Author's calculation.

Table 5 shows descriptive statistics for variables used in empirical model 2. Firm size has a mean value of 6.26, and leverage has a mean value of 0.57. The median value of both these variables is close to their mean values. It suggests that the sample is a symmetric representation of firms with different sizes and leverage. The mean value of return on total assets is 5%, and the median value is 4%. This indicates that the sample is a symmetric distribution of firms with different performances. The mean value of the price to book ratio is 2.13, and the median value is 1. It means that the sample consists of value-creating firms. The mean value of operating cash flows is 8% of total assets, and the median value is close to the mean value. It suggests that the sample is a symmetric representation of firms with different operating cash flows. The mean value of age is 30 years, and the median age is 24 years. In the sample under study, 60% of the firms are manufacturing and 40% of the firms are non-manufacturing. Thus, the sample is a representation of different types of firms.

Table 6: Correlation Matrix

	SIZE	LEV	ROTA	P_B	IND_MEM	AGE
SIZE	1					
LEV	0.0310***	1				
ROTA	0.0894***	-0.4484***	1			
P_B	0.1481***	-0.1056***	0.3421***	1		
IND_MEM	0.0061***	0.1741***	0.0348***	-0.0070	1	
AGE	0.2852***	-0.0182***	0.0323***	0.0934***	0.1522***	1

Table 6 shows the correlation between all the independent variables. All the variables are positively related to the firm's size. The positive correlation means that large firms have higher leverage, firm performance and growth opportunities compared to other firms. Leverage is negatively correlated with all variables except industry membership. Firm performance has a negative correlation with leverage. The price to book ratio is positively correlated with all variables except leverage and industry membership.

Table 7: Correlation with EM

EM	Jones (1991)	Dechow et al. (1995)	Kasznik (1999)	Francis et al. (2005)	McNichols and Stubben (2008)
SIZE	0.0090	0.0146	0.0117	-0.0541***	0.0044
LEV	-0.0419***	-0.0198*	-0.0231**	0.0345***	0.0567***
ROTA	0.0869***	0.1345***	0.1510***	-0.0860***	0.0248**
P_B	-0.0023	0.0189	0.0155	0.0166	-0.0310***
IND_MEM	-0.0000	-0.0000	0.0000	-0.1555***	-0.0000
AGE	-0.0228**	-0.0338***	-0.0330***	-0.0160	-0.0382***

Table 7 shows the Pearson pairwise correlation between all the independent variables with EM, separately for each EM model. Size is positively correlated with EM across all models except for Francis et al. (2005) model. Leverage is negatively correlated with EM across all models except for Francis et al. (2005) model. Firm performance is positively correlated with EM across all models except for Francis et al. (2005) model. Age is negatively correlated with EM across all models. The variance inflation factor (VIF) is within prescribed limits. Hence, there is no problem of multicollinearity.

Table 8: Regression Results

Variable	Expected Sign	Total Accruals Models			Current Accruals Model	Specific Accrual Model
		Jones (1991)	Dechow et al. (1995)	Kasznik (1999)	Francis et al. (2005)	McNichols and Stubben (2008)
C		-0.0107 (-1.52)	-0.0291 (-4.14)***	-0.0255 (-4.11)***	0.1109 (34.18)***	-0.0115 (-3.48)***
Size	?	0.0017 (1.86)*	0.0019 (2.08)**	0.0012 (1.5)	-0.0018 (-4.46)***	0.0006 (1.45)
Lev	?	-0.0044 (-0.85)	0.0172 (3.28)***	0.0193 (4.14)***	0.0008 (0.36)	0.0145 (5.9)***
ROA	+	0.0014 (6.35)***	0.0025 (11.25)***	0.0025 (12.57)***	-0.0005 (-5.64)***	0.0005 (4.56)***
P_B Ratio	−	-0.0015 (-3.15)***	-0.0013 (-2.68)***	-0.0014 (-3.28)***	0.0010 (4.19)***	-0.0008 (-3.38)***
IND_MEM	?	0.0009 (0.32)	-0.0001 (-0.06)	-0.0005 (-0.19)	-0.0183 (-12.74)***	-0.0004 (-0.31)

Variable	Expected Sign	Total Accruals Models			Current Accruals Model	Specific Accrual Model
Age	?	-0.00009 (-1.44)	-0.0001 (-2.09)**	-0.0001 (-1.87)*	0.00001 (0.51)	-0.0001 (-2.06)**
N		6683	6194	6116	5933	6215
Adj R^2		0.0088	0.0221	0.0267	0.0373	0.01
F-statistic		10.88	24.38	28.96	39.29	8.94
p-value		0	0	0	0	0

Table 8 present the results of the regression analysis. EM estimated using different models is regressed on firm characteristics like size, leverage, firm performance, growth opportunities and industry membership. We find mixed results for size. The coefficient is negative and significant for Francis et al. (2005) model. The results indicate that large firms have better accruals quality. It is positive and significant for the Jones (1991) model and modified Jones model. A positive relationship is possible as income smoothing is more prevalent in large firms than in small firms (Albrecht & Richardson, 1990). Size also indicates diversification, economies of scale, synergy and stability of operations (Agarwal & Singh, 2022). Stable operations result in predictable stream of earnings. Leverage shows a positive sign for all EM models except for the Jones (1991) model. The results indicate that firms use accruals EM to avoid violation of debt covenants. Research has also shown that companies with high levels of debt follow less conservative accounting practices and thus high accruals (Ben Néfissa & Jilani, 2021).

Firm performance has a positive and significant coefficient for all the EM models except for Francis et al. (2005) model. The results indicate that firms with higher performance have higher accruals quality. However, it is positive and significant for all other models. The positive relationship can be attributed to income smoothing by firms. Growth opportunities have a negative and significant relationship with EM except for Francis et al. (2005) model. The results indicate that with the increase in growth opportunities, accruals quality decline. Industry membership has a negative and significant relationship with EM for Francis et al. (2005) model indicating that manufacturing firms have better accruals quality than non-manufacturing firms. Age has a negative and significant relationship with EM for the modified Jones model, Kasznik (1999) model, and discretionary revenues model. The results indicate that older firms are less likely to resort to accruals EM.

We conduct tests to check for the presence of heteroskedasticity and autocorrelation. Breusch-Pagan/ Cook-Weisberg Test and White's test indicates the presence of heteroskedasticity. The Wooldridge test indicates the presence of autocorrelation. Robust standard errors and cluster robust standard errors (clustered by company code and year) are calculated to address the issue of heteroskedasticity and autocorrelation. The untabulated results for robust standard errors indicate no deviation from the main results except for the modified Jones model, whereby the significance of price to book ratio decreases.

The untabulated results for regression analysis using cluster robust standard errors does not show a significant deviation from the main results except for the coefficient of age which becomes significant for Jones (1991) model.

The untabulated results for regression analysis using cluster robust standard errors, clustered by year. It does not show a significant deviation from the main results except for size, leverage and age. The coefficient of size becomes significant for Kasznik (1999) model. The coefficient of leverage becomes insignificant for the modified Jones model and Kasznik (1999) model. The coefficient of age becomes insignificant for the modified Jones model and Kasznik (1999) model.

CONCLUSION

This study examined the relationship between firm characteristics and accruals EM for a sample of non-financial listed firms in India. We find that large firms and firms with high performance have higher accruals quality while firms with higher growth opportunities have lower accruals quality. Firms with high leverage use accruals EM to avoid violation of debt covenants. The findings indicate that firms with high leverage and higher growth opportunities are more likely to resort to various routes to manage earnings. The study takes a comprehensive view of accruals EM by taking into account total accruals, current accruals and specific accruals. We find a major difference in the results for Francis et al. (2005) model and all the remaining models. For example, for Francis et al. (2005) model, we find a negative relationship between firm size and EM while it is positive for all the remaining models. Francis et al. (2005) model take into account the standard deviation of abnormal accruals of five years to estimate EM while all the remaining models take into account abnormal accruals of one year. This means that over the years EM contributes to improving accruals

quality and embeds decision-useful information. Thus, the findings indicate that investors and regulators should take into account abnormal accruals over a period of time and the variability of abnormal accruals both to analyse a firm's quality of financial reporting. The focus of the present study was only on accruals EM. Future research can focus on other types of EM. Future research also becomes imperative as India has adopted principle-based accounting regime – Ind AS. Research has shown that Ind AS can significantly impact accounting numbers (Shah et al., 2023; Rao et al., 2020).

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