

How do Indian Firms Cope with a Crisis? - Earnings Management Characteristics of CNX Nifty 100 Companies

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Abstract

An analysis of Indian CNX Nifty 100 companies uncovers the perils of opportunistic earnings management as crises affect balance sheets in FY2007 and FY2012, recession years around the Global Financial crisis. Only a small portion of the companies engage in sophisticated earnings management commensurate with performance.

Operating accruals of the firm are synonymous with its Working Capital investment. These accruals measure Working Capital dependencies in financing growth and should instantiate on PPE investments. The Modified Jones model is measured for the sample of CNX 100 companies including Banks and a DID approach used to compare data before and after a crisis year.

Indian firms show only a 2% level of accruals, but more than 30% firm years show significantly higher accruals in growth years. The study proves indications of Performance measurement hypothesis yet primarily only Opportunistic accruals with negative correlation between Post crisis and pre-crisis accruals and accruals increasing in the post crisis year. Accruals are significantly incident on sales in the pre-crisis years.

The presence of negative accruals may show effects of high growth and slack corporate governance. Banking firms respond with a more sophisticated earnings management strategy. Discretionary Loan Loss provisions significantly increase with increase in Cash profits. These Operating accruals of the firm are synonymous with its Working Capital investment.

Keywords: Discretionary Accruals, Earnings Management, GFC, Global Financial Crisis, Financial Reporting, Corporate Governance, India, NSE 100, negative accruals

JEL: M41, M49

1. Introduction

India is one of the deepest Financial Markets and an attractive destination for Venture Capital and Private Equity (Groh et al., 2018). This study features the behavior of the 100 largest and most liquid NSE 100 firms from India, analyzed in the Modified Jones model used by Dechow, Sloan and Sweeney (1995), hereinafter referred to as *DSS95*. We also include Banks in our analysis for earnings management. Across two recessions in 2007 and 2012 recovering firms show striking changes in earnings management behavior revealing opportunistic behavior of firms caught in all its glory using a simple DID design while banks show up as sophisticated users of accrual-based earnings management during the same period.

Financial reporting continues to become sophisticated and is consistently harmonized internationally. There is evidence, however, that firms worldwide continue to engage in accruals-based earnings management and real activity earnings management. This also corresponds to a general reluctance on part of managers to report bad news and to report in line with or beating expectations from their own guidance and analysts' forecasts. Accruals are a significant indicator of earnings quality along with persistence, smoothness, timeliness, loss avoidance and frequently used for verification in the literature with events of earnings restatement and enforcement actions by SEC(USA), SEBI(India) or other regulators (Dechow, Ge and Schrand, 2010).

Evidence of counteracting business cycle impact on the firm is linked with both real and accrual- based earnings management. However, reporting enforcement of real measures that include one-off expenses may be unreliable and we rely on accrual-based earnings measures of earnings management. Recent analyses link earnings management propensity of firms with market returns (Li and Hwang, 2019, Dayanandan and Sra, 2018).

Earnings management literature relies heavily on the Jones (1991) model. Different variations in methodology have been focused around maintaining and improving the power of the test and a recognition of the limitations of the test while its continuing effectiveness in isolating discretionary accruals. We use a sample of the 100 largest and most liquid Indian firms listed on the NSE, represented in the Nifty 100 index. As of March 2018, the index represented nearly four fifths of the Indian market capitalization.

Operating accruals of the firm are synonymous with its Working Capital investment. Both industry-based models and the generalized models have been applied to the problem of isolating non-discretionary and discretionary accruals. Competing Earnings management theories can be variously applied and extended to therefore, forecast companies' idiosyncratic and market wide responses to information flow and macroeconomic factors to its version of the truth in providing earnings guidance, reacting to good and bad news and creating cookie jar reserves for the future. Agency theory (Jensen and Meckling, 1976) explains partly the managers' increasing requirements for a discretion in reporting earnings and smoothing earnings irrespective of industry.

The study investigates earnings management strategies of the 100 largest banks and non-financial companies from India and compares their reactions to financial crises to separate how

many firms are displaying sophisticated corporate governance and following performance measurement hypothesis of earnings management in a larger emerging market like India with deeper Financial markets and a robust regulatory environment. Emerging markets have a higher average economic growth and growth imperatives are expected to influence firms' earnings management strategies.

Follow on research can show the impact of national accounting guidelines, IFRS, Guidance and Forecast revisions and pre-IPO or pre-merger valuation motivations on the Earnings management strategy of the firm and relate to its expectation management of stock returns. Goel (2018) tests for MNE vs domestic difference in earnings management using reputation; Ming (2003) and Elleuch and Taktak(2015) use earnings management to trace the process of effectivising corporate governance and regulation in an emerging economy; while Safdar and Yan (2016) and Attia, Lassoud & Attia (2016) recover significant managerial outcomes employing Earnings management models.

1.1 Earnings management in Banks

Banks have been found to exercise a similar discretion in providing and renewing Loan Loss Reserves to create a managerial control option in reported earnings. While current research ignores banks in Earnings management analysis, we collate earnings management analyses by banks and present a consolidated finding comparing the entire NSE 100 sample. Current research also finds the role for AFS securities following on Realized gains from Securities which we also attempt as a proxy for Indian Banks in the Nifty 50 and Junior 50 indices. Fair value accounting is still not likely to show up in Indian Banks' reported data though some data on outstanding derivatives' positions is available and securitization is also expected to add more power to manage growth financing to banking balance sheets. Gombola, Ho and Huang (2016) have also linked the recent literature in leverage and liquidity to earnings and capital management.

Othman and Mersni (2014) provide an informative analysis using Loan Loss provisions (LLPs) in Middle eastern banks while Ozili (2018) links Discretionary LLPs to macroeconomic progress and investor protection.

1.2 Dealing with Crises

Cyclical recessions and non-cyclical crisis events such as the Global Financial Crisis of 2007 generate a similar response from firms within the means available to managers to tweak their financial reporting and minimize the impact of the crises on the firm's stakeholders and future investing and financing activities. We use crisis years of 2007 and 2012 to measure and report the earnings management activities of Indian Non-Financial Firms and Banks and review the results considering existing evidence and for the benefit of follow on research in the area. The analysis and the literature recognizes that quarterly earnings announcements facilitate the smoother management of earnings management strategies but as it relies on a large sample, it expects sufficient power in the tests to ignore other announcement effects in a consideration of annual earnings announcement windows. Flores et al. (2018) and Persakis and Iatridis (2015) review the relationship between crises and earnings management.

Final earnings announcements of the year are likely to be more definitive regarding the company's overall earnings management intentions and avoid seasonal fluctuations. As Indian firms follow an April – March Fiscal year, we also follow their March fiscal announcements. We also expect in general that changes in accounting guidelines over the years would have reduced overall opportunities for earnings management. However, the corresponding likely increase of intangible assets during the period would correspond to some increasing opportunity for earnings management as well as is visible in Table 2. The analysis precludes the final introduction of IFRS as a mandatory requirement for Indian firms though internationally focused and corporate governance aware firms invest in IFRS based financial reporting. We also rely on a consensus that informativeness of Financial reporting has not decreased in the period of 2002-2015 which data we employ in the analysis. Seminal research in the area includes a discussion on informativeness in Beaver, Correia and McNichols (2009); discussion on earnings quality by Dechow, Ge and Schrand (2010) and the discussion by McNichols and Stubbens (2008) on the role of Earnings management in relation to investment activity envisaged by the firm.

This study contributes to the literature in establishing a benchmark level of Earnings management in Emerging markets which at 2% verifies with other multi country studies in the area. We find there are no significant differences based in Industries however given that growth-oriented firms are creating more Earnings management, the influence of innovation-based strategies can be explained in Industrials and Healthcare (see Table 2) apart from the significant effect of Corporate Governance on Earnings management. The study is based on 100 largest listed enterprises in India under the Companies Act (2013) and the relevant banking acts for listed banks. Sophisticated earnings management is proved by a negative correlation in larger Corporates and the Pro cyclical ramp up of Discretionary LLPs in banks

The study importantly proves the opportunistic reliance of large, well-managed and established firms on Sales. Earnings management is related to Sales with a large coefficient that significantly changes signs in the crisis years. This reflects poorly on Corporate governance standards in large emerging markets and reflects on the requirement of investment outstripping available capital as managers increase profit reporting using all available cash into working capital investments making PPE investments a second-best priority. Earnings management is lower in larger companies with recognition in Corporate Governance.

India is an investor friendly, well-regulated destination with deep Financial markets (Groh et al., 2018). The study tries to close the gap in the higher earnings management given in the sample given the better standards of corporate governance visible based on compliance with international reporting standards and the recent outward M&A seen in such large emerging markets and compares Earnings management strategies of Banks in the sample (listed banks in the Nifty 100 in India). We find banks to be sophisticate users of earnings management, increasing LLPs during profitable years supported by express regulation from the RBI (Central bank). Jooste (2013) employs a survey to confirm the ethical issues surrounding discretionary earnings management while Li, Park and Bao (2014) comment on trustworthiness of Financial reporting in Emerging market economies.

The following section updates the literature review on the subject. The document proceeds to explain the Data and apply DID measurement with the Earnings management model to isolate the behavior of discretionary accruals in the designated crises years. In the end we discuss the conclusions from our data and the implications for the subject.

2. Literature Review

Earnings Management has been tested empirically across international accounting regimes. It is seen to be lower in common law countries because of better investor protection (Leuz, Nanda and Wysocki, 2003). Real Earnings Management becomes more possible with lower discretionary expenses. However, Li (2019) confirms that real and accrual-based earnings management are complementary. Attia, Lassoued and Attia (2016); Ahmed (2015); Safdar and Yan (2016); and Dayanandan and Sra (2018) comment on the accrual-based earnings management in emerging markets and their earnings quality, informativeness and value relevance in a growth environment.

Asia and other higher growth countries are found to lie in an independent cluster with both civil and common law characteristics with significant accrual-based earnings management (ibid.). These dimensions in earnings management advantage from Corporate Finance literature of LaPorta et al (2002) relating Corporate Governance, monitoring and investor protection and legal frameworks in host countries.

Accruals are frequently used for verification in the literature with events of earnings restatement and enforcement actions by SEC (USA), SEBI (India) or other regulators. (Dechow, Ge and Schrand, 2010)

Bonus contracts necessitate earnings management in line with agency implications. Evidence of counteracting business cycle impact on the firm motivates it.

The extent of earnings management using accruals may depend on the extent of ownership control in the company. Beating forecasts (Earnings surprise), a frequent phenomenon in India, however, is not seen as a motivating factor for increasing institutional ownership, as in Sen (2009).

Dechow et al. (2012) continue their 1995 seminal review of earnings management models in an effort to create a more robust test to detect earnings management by assuming the eventual reversal of discretionary accruals in the very next year. While the presence of a large sample in our case allows us to avoid making such assumptions, we expect the reversal of accruals to force ill prepared firms into a reactive crisis of earnings in their post crisis reports in FY 2007 and FY 2012. We rely on the original Modified Jones models and then separate the Discretionary accruals for the firms.

The Jones (1991) model introduced a linear relation between Total Accruals and Changes in Sales and Property, Plant and Equipment. The effect of Account receivables from Credit sales is subsequently accounted for in the Modified Jones model by *DSS95* and remains the bedrock of earnings management literature. This model replaced the Total Accruals approach and

Industry model approaches as succinctly explained in *DSS95*. The detailed model is presented in section 4.3.

While Non-discretionary accruals relate to the operating characteristics of the business, discretionary accruals reverse out in a few years. Corrections to the modified Jones models in the literature by Dechow et al. (2011) incorporating reversals in the very next year and by use of matched firms by Kothari, Leone and Wasley (2005) are found to be exceedingly complex without additional benefits of power or reliability. Other mechanisms to separate accruals also frequently underperform the Modified Jones model and thus the same as typified in equations (1) and (2) is primarily used on the sample here to separate discretionary accruals. The reversal of discretionary accruals in fact improves the statistical validity of the test and improves its power over a larger sample.

The model remains robust and the most effective in discerning the role of accruals after controlling for long term growth and the return on assets. The growth variation is realized because of dependence of growth on the Working Capital investment outlays. The success of the Modified Jones model however argues that the model may be biased against growth companies seen as reporting higher discretionary accruals (McNichols, 2000).

This study separates the Discretionary accruals for the firms as per the model. Using Discretionary accruals thus available, the literature goes on to implement market model event studies based in Ross' APT in DeFond and Jimbalvo(1994) and estimate the influence of independent components of non-discretionary accruals after controlling for expected growth as in McNichols(2000).

However, the attempt at specifying specific accruals tests has failed repeatedly in the literature. Additionally, even the use of annual year end data as in our study has to contend with clustered announcements at the end of the year and it is difficult to assume a parametric relation even after specifying different bases to tackle event contamination and it is virtually impossible to isolate the effects of specific accruals except for that may be argued in theory. For example, changes in receivables are specific to the credit policy (easy or discriminatory or other generous) adopted by each firm and even price changes of the product may show up in higher sales and higher discretionary accruals.

Kothari, Mizik and Roychowdhury (2015) process the available models for discretionary accruals and real activity manipulation to affect the causality in valuation of pre-SEO companies' (IPO) valuation. Similarly, the use of this earnings management analysis will be useful in discovering valuation issues prior to a firm planning higher inorganic investments i.e. large public and private mergers and acquisitions (Mao and Renneboog, 2015). However, issues of valuation are more affected by real activity manipulation, namely by influencing consistent opportunistic reduction of intangible expenses and SGA expenses prior to IPO. Investors' trust is more affected by accrual-based earnings management (Hewitt, Hodge and Pratt, 2015).

Discretion available to managers allows us to account for the Basu asymmetric timeliness coefficient (Ball, Kothari and Nikolaev, 2013) or the negative coefficient to bad news in

earnings that allows for slower digestion of negative earnings impact news that ties in with accounting conservatism.

Dechow et al. (2012) reinforces a negative correlation in discretionary accruals time series as they are expected to be reversed. Richardson et al. (2005) describe earnings persistence as a criterion for discerning whether accruals are reliable or not. This implies that firms may be marked as unreliable after having used opportunistic accruals to trump up earnings as reversals ensue. On the other hand, this increases the tendency of firms to engage in downward earnings management as they understate earnings in good times and that allows them to smooth earnings during crises. We analyze our sample to affirm if specific firms can be seen to be implementing downward earnings management or if they are engaging primarily in opportunistic accruals management.

Earnings management motivations are frequently explained in agency theory. This includes Earnings forecasts and earnings surprises, differentiating positive and negative surprises and the management propensity to influence bonuses and manage bad news slowly as measured in the Basu asymmetry coefficient (Ball, Kothari and Nikolaev, 2013).

Earnings management will depend on institutional ownership (Ghosh, 2011), the presence of international investors, accounting conservatism, impairment and loss events, and analyst forecasts or management guidance. Dechow et al. (2011) and others use the list of SEC enforcement actions to identify a sample of firms engaging in accruals misstatements and try to predict characteristics of misstating firms using F-statistics to get rid of chances of Type I errors in the model.

Li (2019), Hsieh et al. (2018) and Lewellen and Resutek (2019) again emphasize for our paper the importance of accrual-based earnings management in unravelling corporate governance because of the low persistence of accruals and their direct linkages with managerial incentives and managerial background while Ozili (2018) and Dayanandan and Sra (2018) confirm effective procyclical governance using accrual based earnings management and their obvious value relevance.

Working Capital Investments

As mentioned earlier, the formulation for Accruals in Equation (2) in Section 4.3 refers the Working Capital Investment of the firm. As such, this formulation is likely to be highly skewed in growth times as firms rely on Working Capital Investments to increase the PPE investments of the firm. This is additionally evidenced strongly in our sample of Indian firms.

Banking Firms

Oosterbosch (2000) presents a comprehensive literature review of Earnings management practices in banking firms and tests findings of earnings management thru Loan loss provisions after the introduction of IFRS in small and large banks. Banks valuation and reporting models specify regulatory effects and a reliability of operating profit measures. We therefore rely on banks' specific accrual measures from the literature in Loan loss provisions, and trading gains. In a regulator motivated study, Meisel (2013) applies an industry specific model to banks and

compares for valuation effects in banking firms planning mergers and merger defense. Ahmed, Takeda and Thomas (1999) find no expected earnings management effect in banks and explains the negative correlation of Loan loss provisions to future earnings and stock returns allowing banks to focus on Loan loss provisions (countercyclical and not pro-cyclical as expected in earnings management) for capital management.

Event Studies

Earnings management motivations and information flows relationships are also a frequently tested subject in the literature. These models rely on event study based parametric and non-parametric tests to establish relationship between derivatives pricing, analyst coverage and the accruals anomaly to investigate relationships with accruals. Meeting expectations on a regular basis may for example, improve abnormal returns in calibrated event studies. Also, for companies forced to produce a negative earnings surprise, there may be a motivation to manage earnings downward and create cookie jar reserves for future periods. This has been explored by Dechow et al. (2011, 2012) for firms reporting zero or negative earnings, showing up as a very asymmetric distribution around 0 earnings. Firms positively manipulating earnings also end up over investing in the period with higher discretionary accruals.

Earnings management was also definitively changed for cross listed firms after the introduction of SOX in the US in 2002. Also, audit firms are seen to increase their fee around increasing earnings management. MNCs in India (Ghosh, 2011) are seen to employ international auditors with lower monitoring resulting in higher discretionary accruals. Earnings management will thus depend on institutional ownership, the presence of international investors, accounting conservatism, impairment and loss events, and analyst forecasts or management guidance. More importantly it has significant linkages in the Corporate Governance literature and a significant indicator of the Corporate Governance score of the candidate firms.

We complete the literature review as we began with another application of discretionary accruals in the earnings management literature with Barth et al. (2014) that attempt a market model based earnings transparency measure, where they find in favor of a lower cost of capital reward for firms that can prove earnings transparency. The new IFRS mandate in the meanwhile is expected to homogenize Financial reporting completely after its launch in 2019 and may necessitate a reevaluation of any firm specific measures and traditional earnings management (Barth et al., 2012). However, Oosterbosch(2000) confirms that sophisticated earnings management users in large banks continue to prefer earnings management to retain investor trust.

3. Hypotheses

We propose and evaluate the following hypotheses for Indian firms employing accruals-based earnings management

Hypothesis 1: Crisis events will expose firms' specific earnings management strategies. Proactive strategies (Performance measurement) can be compared with Reactive earnings management (Opportunistic accruals).

If there is proactive earnings management, there may be no change in the firms' EM strategies.

It is reasonable to expect that the reversal of accruals to force ill prepared firms into a reactive crisis of earnings in their post crisis reports in FY 2007 and FY 2012. The low persistence of accruals (Lewellen and Resutek, 2019) link accrual-based earnings management directly to managerial incentives (Ahmed, 2015) as higher earnings management expose manipulation. Also, as Li (2019) discovers, accrual and real based earnings management are complementary to each other.

Hypothesis 2: Indian firms will reflect Earnings Management strategies more suited to growth firms.

Crisis response will be heightened in Indian firms because of the pressures of growth. Hsieh et al. (2018) finds in an emerging market sample that the firms' executive leadership defines its earnings management levels effectively moderated by the presence of founders. Emerging markets in Asia therefore balance between curbing earnings manipulation because of the educational backgrounds of top management whilst managing the trade off with entrenchment hypothesis

Hypothesis 3: Both Banking firms and Non-Financial firms will exhibit complementary earnings management strategies. Banking firms will respond with more sophisticated Earnings management as adverse credit decisions lead the onset of a crisis.

In the presence of basic data on Loan Loss provisions and trading gains on securities the analysis shows the presence of earnings management in the financial firms (tested in only Banking firms) as being more sophisticated than that in the sample of Non- financial firms. Elleuch and Taktak (2015) decode earnings management in banks as regulations change while Ozili (2018) and Othman and Mersni (2014) trace the macroeconomic cycles and efficient and effective earnings management by banks using Discretionary LLPs.

Hypothesis 4: Indian firms primarily engage in Performance measurement using discretionary accruals if they have the requisite size.

As tested in Guay, Kothari and Watts (1996) henceforth GWK, the discretionary accrual amounts and their relationship to earnings can be used to tie in the firms' use of discretionary accruals as Performance Measurement vis a vis Opportunistic Accruals management hypothesis.

This will be shown by the presence of a negative correlation in the discretionary accruals in the pre-crisis and post crisis years.

However, this might be significant evidence of Opportunistic Accruals management if the direction of the accruals is higher in the post crises year. Earnings management in emerging markets with robust markets and investor protection regimes is significantly affected by growth and management skills (Hsieh et al. 2018)

4. Experimental Design

4.1 Sample Selection

The Nifty 100 index constituents form the sample of firms in the study. The popular Nifty 50 and Nifty junior 50 indices together account for the Nifty 100 firms. These firms are spread across 12 sectors and as for March 2015 account for 78% of the free float of the National Stock Exchange in India. After excluding other financial firms, we end up with 76 firms and 12 banks and calculate the accrual measures based on the Modified Jones model weighted by total assets at the beginning of year to take care of endogeneity and minimize size effects in the pooled regression. For each firm we get Financial statement data from the Bloomberg database for the period 2001-2015.

Some firms need to be excluded for non -availability of key Financial statement data such as M&M (receivables) and Bharat Forge (total assets). As Firm years are separated later based on crises events in 2001, 2006 and 2011, we use Financial data as available only when completely available for both pre and post crisis years. Other firm years are collated together to compute the OLS coefficients in (1).

We neglect the small impact of taxes in the calculation of Total Accruals in the data. Apart from the effect being small in size, most tax aligned manipulation of earnings is likely to be included in real activity Earnings management and we concern ourselves with Accruals based earnings management.

We also appreciate our limitation of this study in that in the style of Bartov (2003) we would prefer using 10-Q and equivalent Indian disclosures to closely track earnings management. However, it is also true that Earning management is intuitive to the firms' management and usually advantages from earnings seasonality and priorities. Thus, an experiment design with quarterly statements may not be ideal for Earnings management analysis.

4.2 Data

The 76 Non-Financial firms yield a total of 692 eligible firm years.

As 2001 is usually the first available year in the Bloomberg data files, we are unable to use the crisis year in 2001 in the specification. The scaling requires last year's Total Assets to form the variables. This is because the development of the Accrual model realizes the previous years' closing balance sheet value (Total Assets) as the best company datum to weight Accruals and Revenue and Property Plant and Equipment data assigned in Equation (2).

We calculate weighted data for Total Accruals and the two Independent variables for the 692 firm years using the values of Revenues, Receivables, Current Assets, Current Liabilities, Cash and equivalent, Short term debt, Total assets (t-1 year) as well as PP&E, directly available from Bloomberg or within reasonable permutations from available fields without restating earnings or applying further approximations. This meant sometimes computing the value of Total Assets for all years based on Net Current Assets + Total Non-Current Assets.

The sample of 692 Firm years has corresponding 109 crisis observation pairs, which are tested for difference in discretionary accruals using Paired t tests. The crises reactions can be separately analyzed for 2012(2011) and 2007(2006) with 64 and 45 pairs respectively.

Interestingly at least 191 firm years show negative Total accruals even when a -10% TA level is used, signifying a heavy reliance of large growth companies in the index. These growth companies habitually rely on Current Liability accruals and significant PPE investments even though the amount of intangibles is increasing that may also be invested in Corporate Governance.

In our sample of Banks, the available data set of 131 firm years, we collate different OLS data on Loan Loss provisions scaled by total loans, non-performing Loans (also scaled by Total Loans) (which we drop for intractability), Income before Taxes and Loss provisions scaled by Total assets ($IBIT_t$) as well as trading gains scaled by the IBIT. This data correspondingly has 20 crisis observations, (20 pre crises year and 20 Post crises years).

The Fiscal year returns for the Nifty 100 members are taken corresponding to available Financial Statement data. Where such correspondence is not available, we are left with 668 eligible firm years for the decomposition models of Fiscal year returns.

Descriptive statistics of the data series in each case from the estimation of Discretionary accruals, to impact of Crises years on Discretionary accruals and Non-Discretionary accruals estimates are presented with the results from each stage of the design.

4.3 Methodology

The Modified Jones model in *DSS95* is implemented as under:

$$TA_t = \beta_1(1/A_{t-1}) + \beta_2(\text{REV}_t - \text{REC}_t)/A_{t-1} + \beta_3(\text{PPE}_t)/A_{t-1} \quad (1)$$

$$TA_t = (\text{CA}_t - \text{CL}_t - \text{CASH}_t + \text{STDEBT}_t - \text{DEPTN}_t)/\text{ASSET}_{t-1} \quad (2)$$

Firm years are collated together to compute the OLS coefficients in (1).

The Non-discretionary accruals are directly estimated in the above form as the total estimable accruals and the OLS regression across firm years yields errors as Discretionary accruals.

The Discretionary accruals separated from the Modified Jones (1991) formulation as error can thus be estimated.

The small impact of taxes in the calculation of Total Accruals in the data is neglected.

The study follows annual March fiscal announcements. Informativeness of Financial reporting has not decreased in the period of 2001-2015 which data we employ in the analysis.

Estimation of discretionary accruals have been assessed for Power and relevance variously by Dechow et al. (2011); Kothari, Leone and Wasley (2005) and Kothari, Mizik and Roychowdhury (2015). While Non-discretionary accruals relate to the operating characteristics of the business, discretionary accruals reverse out after a few years. Corrections to the modified jones models in the literature by Dechow et al. (2011) incorporating reversals in the very next

year and by use of matched firms by Kothari, Leone and Wasley (2005) were found to be exceedingly complex without additional benefits of power or reliability. As already discussed in the literature, other mechanisms to separate accruals also frequently underperform the Modified Jones model and thus the same as typified in equations (1) and (2) is primarily used on the sample here to separate discretionary accruals. The reversal of discretionary accruals in fact improves the statistical validity of the test and improves its power over a larger sample.

For the crises pairs, a dummy variable PARTt is employed. The results of the regression using the dummy variable PARTt in a single regression misspecifies the results and we end up with increasing non-discretionary accruals in the crisis year.

As many as 32 firm years out of 64 represent firms increasing their total accruals during the crises year. When a separate regression is run for prior and post years models to capture different Non-discretionary accrual and estimate back the DA from them as error, we find the increased accruals showing as expected in the padded Discretionary accruals.

This difference is tested using a paired t test of these firm years. The Discretionary accruals estimated in the overall model are written back into the data and estimated accruals from the OLS regression used for Non-Discretionary accruals. These Non-discretionary accruals and Discretionary accruals are currently used to estimate their impact on Fiscal year earnings in the style of GKW (1996). These Discretionary accruals can be utilized for computing any impact on returns in follow on research using the discretionary accruals reported in this analysis

As tested in the literature, the discretionary accrual amounts and their relationship to earnings can be used to tie in the firms' use of discretionary accruals as Performance Measurement vis a vis Opportunistic Accruals management hypothesis. As per Performance measurement hypothesis,

We analyze our sample to affirm if specific firms can be seen to be implementing downward earnings management as per the Performance Measurement hypothesis or if they are engaging primarily in opportunistic accruals management. The presence of Cookie jar reserves can be cogently tested in subsamples of large firms and also in industry wise measures as industry firms may likely follow similar management mantras.

The sample for banks is run for earnings management on cash profits before accruals and loan loss provisions. Loan loss provisions represent by far the most important discretionary accrual on Bank balance sheets and are used directly. Thus the study operates on scaled LLP_t as a ratio of overall Loans measured in a regression with two IVs, scaled Trading Gains (scaled by EBIT), TRAD_t and the cash profit scaled by Total Assets of the firm of the same year), IBIT_t. We also use Bloomberg data for NPLs and Trading gains as well as Tier I capital ratios to measure the extent of use of discretionary accruals.

On the non-financial sample we run a test of correlations between non-discretionary accruals and discretionary accruals. A negative correlation specifies an under reaction to the economic shock in the performance measurement hypothesis and conforms to the opportunistic accruals management hypothesis for firms that are forcing earnings upward.

All OLS regressions are run using robust Standard errors in Stata.

5. Results

5.1 Preliminary observations of the Non-Financial sample

A simple analysis of the pre-crisis accruals shows a lack of earnings management savvy in Indian public corporations as they prefer to depend on next year's growing sales instead of creating any distance between them and a crisis with a large negative dependence on the increasing sales (-24.7%). Firms also show more negative dependence on PPE investments that continues with highly significant coefficients in both pre crisis (-6.8%) and post crisis years (-8.0%). However, in the post crisis years it becomes more discernible that negative accruals are related to higher Capital Expenditure and hence growth. This is primarily because the Crisis year forces managements to invest a more significant proportion of their Total accruals in Discretionary cookie jar reserves. However the Sales coefficient is not found to be significant in either regression. The situation is more a reflection of Corporate Governance practices and the larger availability of Cash in each of the firm's balance sheets balancing larger supplier liabilities.

5.2 Results from the Non-Financial Sample

We present the results of the OLS regressions in Table 1. The DA measurements are included in the results of the pooled regression using robust Standard errors.

The F Statistic of the test is 12 and the PPE variable is significant at greater than 99% level with an R2 from the Sales growth and PPE variables of 3.38%

The relation for estimating back NDA and separating DA is thus

$$\text{NDA} = 0.004074 - 0.013541 * \text{Sales} - 0.077697 * \text{PPE}_t \quad (3)$$

The Post crises relation shows a better significance of Sales and a positive coefficient on the same, with significantly higher Discretionary accruals

$$\text{TA (post)} = -0.005196 + 0.040315 * \text{Sales} - 0.073017 * \text{PPE}_t \quad (4)$$

$$\text{TA (pre)} = 0.083543 - 0.249178 * \text{Sales} - 0.095347 * \text{PPE}_t \quad (5)$$

Separated pre crisis years show perfect dependence with Sales ($t=4.47$) and almost 0 Discretionary accruals. For the pooled results the Perfect correlation with PPE is restored in the post crisis years as the firms get caught for bleeding all the cash in booking higher sales at the top of the pre-crisis boom.

Discretionary Accruals rise by 29% of Assets in the year following as firms show Opportunistic accruals to claw earnings at level using accruals-based earnings management apart from any real activity-based earnings management not measured here. Paired t-test statistic is 9.15.

Additional confirmation of negative correlation between Non-discretionary and Discretionary accruals at -10% shows a presence of Performance measurement accruals. However, negative

accruals between pre and post crisis data with increase in post crisis accruals show preponderance of opportunistic accruals management in the post crisis year.

Thus, we show that Crisis expose the presence of Performance measurement in Indian firms', yet there is evidence of continuing Opportunistic accruals management. The effects of growth are unable to mask the firms' choice of earnings management. As we see below, Banking firms however respond more proactively, and accruals reduce in the post crisis years.

Table 1. Descriptive statistics for the Accrual data for the CNX Nifty 100 from FY2002-FY2015. All data is presented as the ratio of previous year's assets to normalise the data. Only non-financial firms are included in this part

Variable	no. of firms	Firm years	5% value	95% value	Mean	SD	Variable Description
TA	76	743	-0.305975	0.187788	0.039236	0.185191	TA/A(t-1)
Sales	76	743	-0.060728	0.884662	0.281740	0.421427	$\Delta\text{Rev}(t) - \Delta\text{Rec}(t) / A(t-1)$
PPE	76	743	0.110931	1.017761	0.508322	0.415155	PPE(t) / A(t-1)
PART	76	232	0.000000	1.000000	0.500000	0.501081	There are 116 crisis year pairs for 2006 and 2011 as exit years
NDE	76	743	-0.089340	-0.009870	0.042870	0.034039	Estimated from (1)
DA	76	743	-0.238025	0.239569	0.003633	0.181962	Estimated as residual from (1)

Table 1b: NDE Estimation

	All firm years	Pre-Crisis	Post Crisis
Sales	-0.013541 (.036115)	-0.249178*** (.090424)	0.040315 (.098782)
PPE	-0.077697*** (.021978)	-0.095347 (.077220)	-0.073017** (.031090)
Constant	0.004074 (.013298)	0.083543 (.046379)	-0.005196 (.025762)
R – squared	0.0346	0.1454	0.0278
F stat	6.58	5.3	3.61
Observations	743	116	116
No. of Firms (Pooled)	76	76	76

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

In Table 2 we try and see if there is an industry wise difference visible in the computed discretionary accruals and further research is merited. Accounting guidelines may have changed over the years resulting in reduced overall opportunities for earnings management. However, the corresponding likely increase of intangible assets during the period would correspond to some increasing opportunity for earnings management. The dominant effect of the latter is visible in Table 2 where increased R&D expenditure for Industrials and Healthcare that can be inferred from the objects of these industries shows up in significantly high positive Discretionary accruals for similar PPE levels. Information technology firms, Consumer Discretionary firms, Consumer staples firms and Energy firms show consistently minimal discretionary accruals from the focus on operational efficiencies in the business. Non-Discretionary accruals are more or less consistent around industry groups at 0.037 - 0.042 other than the higher NDE in the nine Telecom and Utility firms. Industry level analysis is left for follow on research with a larger data set.

Table 2. Accrual data for the CNX Nifty 100 from FY2002-FY2015 sorted by Industry groups. All data is presented as the ratio of previous year's assets to normalise the data. Only non-financial firms are included in this part.

Industry	no. of firms	Firm years	Ave TA	Ave Net Sales	Ave PPE	Ave NDE	Ave DA	s.e	+/-
Consumer Discretionary (12 members)	11	110	-0.043116	0.425782	0.444559	-0.039274	-0.38%	1.72%	-
Consumer Staples (11 members)	11	128	-0.055253	0.376017	0.494137	-0.042675	-1.26%	1.97%	-
Energy (9 members)	9	93	-0.046445	0.284913	0.465876	-0.039574	-0.69%	1.40%	-
Health Care (9 members)	9	102	0.004376	0.169818	0.486620	-0.040080	4.45%	1.84%	+
Industrials (8 members)	8	62	-0.010539	0.269683	0.433760	-0.036909	2.64%	2.19%	+
Information Technology (6 members)	6	67	-0.019291	0.309660	0.302576	-0.027017	0.77%	3.20%	+
Materials (13 members)	13	143	-0.031380	0.215889	0.550565	-0.045540	1.42%	1.38%	+
Telecommunication Services (4 members)	4	28	-0.146589	0.132401	0.858233	-0.068839	-7.77%	1.57%	-
Utilities (5 members)	5	45	-0.070816	0.151019	0.884720	-0.071096	0.03%		+
	76	778							

5.3 Results from the Financial Sample

The sample of Financial firms yields significant relationships in OLS regressions with each independent variable at the 95% level. The results are presented in Table 3.

The LLP increase with EBIT by a coefficient of 8.1% and decrease with reported trading gains by 0.11%, both significant at >99.99% level. In the combined regression using PARTt in the regression as Dummy with Trading Gains and EBIT, the constant term remains significant as expected. The EBIT term is significant ($t=2.92$) but the Trading gains terms with the negative coefficient is not significant ($t=-1.15$). The Dummy Variable for Crisis is not found to be significant. We do not attach significance to the combined regression because of paucity of data.

However, for the post crisis sample we are unable to retrieve any significant relationships in the chosen variables. There is a decrease in the LLP in both crisis years at a confidence level under 90%. However, in the pre-crisis sample again, we note that the accruals, LLPt are significantly related to each of the chosen IVs, Trading Gains and the Profit. Banking firms are also better practitioners of Earnings management given better tools of Earnings management for them.

Table 3. Descriptive statistics for the Banking firms in CNX Nifty 100 from FY2005-FY2015. Each of the selected variables are normalised using their effective counterpart in Assets. With 12 banking firms there are only 40 Crisis observations in the period

Variable	no. of firms	Firm years	5% value	95% value	Mean	SD	Variable Description
LLP	12	129	0.000847	0.020558	0.008057	0.006003	Loan loss provisions are normalised by the size of the Loan Book
EBIT	12	128	0.003273	0.041591	0.020088	0.012047	Income before Income Taxes and Loss Provisions (IBITLP) by Total Assets (Size)
TRAD	12	129	0.000000	0.588793	0.258746	0.571684	Trading gains normalised by IBIT
PART	12	129	0.000000	1.000000	0.147287	0.355773	There are 20 crisis year pairs for 2006 and 2011 as exit years. To improve data, all pre crisis years have been counted and only post crisis is computed in 20 obs

Table 1b: LLP relation estimation

	Model 1	Model 2	Model 3	QREG	Post Crisis 1	Post Crisis 2	Post Crisis 3
EBIT	-0.1377126*** (.0427655)		0.1118899** (.0456587)	0.0570447** (.0243844)	0.1343431 (.1088873)		0.1018543 (.1300189)
TRAD		-0.0019106** (.077220)	-0.001265 (.0009623)	0.0000459 (.0005139)		-0.0052914 (0.0048855)	-0.0028783 (.0059364)
PART			-0.0022846 (0.0014515)	-0.0015534** (0.0007752)			
Constant	0.0053214*** (.0010007)	0.0085516*** (.0005731)	0.0065091*** (.0011987)	0.0009358 (.0006402)	0.003672 (.0021607)	-0.005196 (.025762)	0.0045926 (.0029143)
Adj R -squared	0.0687	0.0255	0.0811	0.0643	0.0822	0.0612	0.0955
F stat	10.37	4.35	4.74		1.52	1.17	0.84
Observations	129	129	129	128	19	20	19
No. of Banks (Pooled)	12	12	12	12	12	12	12

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

QREG: Quantile regression Models 1-3 are linear regressions Adj R² is not reported in post crisis models/QREG

LLP relations are significant for regressions of pre crisis paired observations(20) as well, and the t-test testing for significant different between precrisis and post crisis is not significant with t=-1.21

6. Conclusions

The paper shows the strong impact of earnings management in managing crisis year financial reporting.

The ability of firms to grow a base of discretionary accruals in the growth environment lies in the ability of firms to disconnect working capital investments as represented by the accruals here in from investments for Sales. This also stresses firm balance sheets in later years as these discretionary accruals reverse themselves.

7. Possible Implications

Indian firms might benefit from adopting transparent Corporate Governance measures that restrict a management's ability to use accruals opportunistically and focus on effecting investor trust. This might reflect in a more widespread adoption of downward earnings management.

As challenges from the Global Financial crisis translate to more channeled flows of Foreign Direct Investment, India stands to benefit from harmonized Financial reporting and investors would support businesses that adopt a proactive Performance based Earnings Management strategy

Investors would respond negatively to further volatility in earnings when faced by a crisis and this may erode Investor trust and confidence.

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