

The interrelationship between Cash Flow Volatility and Discretionary Accruals in Select Indian Companies

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Abstract

The practices of inflating or deflating reported income to further a subordinate goal of the management or managers of businesses are collectively referred to as earnings management. The extent of the earnings management can be measured from the Modified Jones Model. This model uses the Discretionary Accruals (DA) which is a proxy of earnings management. This is actually the difference of the cash from operations and the net addition to the funds. A connect between the business risk and the earnings management has been under examination in the academia. The internal risk of the business may partially reflect in the debt equity ratio and the external business risk, which may be turbulent sales, would reflect in the volatility of the cash flow from operations. We have attempted to investigate whether the discretionary accrual and cash flow volatility have an interdependence and also the extent of it. Using the Modified Jones model, we have calculated the discretionary accruals for Nifty 50 firms for the previous year. The banking and the financial firms were excluded as per the requirement of the applicability of the Jone's model. The cash flow volatility has been ascertained by mean deviation where the five -year moving average has been considered as the mean. The OLS regression method has been applied which shows a dependence of the discretionary accruals on the cash flow volatility. The results could have been enhanced by the introduction of control variables which remains as the limitation of the study.

Keywords: Earnings Management, Discretionary Accruals; Cash Flow Volatility, Regression Analysis.

1. Introduction

1.1 Earnings Management

The practice of over-reporting or underreporting profits by businesses to further the interests of their owners or managers is known as earnings management, and it has recently been the subject of debate and inquiry worldwide. Highlighting once again the long-running argument over whether managers should defend the interests of the owners and maximise their own compensation or maximise the wealth of shareholders. Numerous studies have shown proof of earnings management, and a plethora of studies have been conducted in various nations worldwide. Businesses will use income deflating strategies when owners must reduce revenues in order to avoid paying taxes and other related expenses while the income inflating earnings management is also evidenced during turbulent times.

One of the main ways that reported income is manipulated is through revenue reporting. There are always some presumptions about bad debt and the speed of recovery when sales are made, particularly on credit terms. In addition to the income side, the expenses may also present a more favourable opportunity for profit management. Depreciation is the term used to describe how assets lose value over time as a result of use and wear and tear. Globally, there are numerous approaches to calculating depreciation, which by itself can attest to the fact that either overcharging or undercharging depreciation is a work that can be handled while staying well within the nation's legal framework. The fact that it would be challenging to declare profits management to be unlawful or a legal violation. According to numerous studies they are all governed by the nation's legal system, they are all bound by the applicable tax laws, accounting standards, and other disclosure requirements. Earnings management, then, is a method of legally manoeuvring reported income. In this context, it's also critical to understand the rationale for earnings management as well as the advantages that the business, managers, or owners derive from earnings management.

1.2 Discretionary Accruals

The indicator or the proxy by which we measure the presence of earnings management is discretionary accruals (DA). In essence, it conveys the construction of accruals which is the gap between cash from operations and net change in funds. The modified Jones model (1991) is the most commonly used model to measure DA, that calculates total accruals by subtracting cash from operations from change in funds. After that, it determines total accruals based on changes in sales, firm size, and property, plant, and equipment. The non-discretionary accrual is then measured using these regression coefficients. The difference between total accrual and non-discretionary accrual is known as DA.

1.3 Volatility in Cash flow & Earnings Management

From the above excerpt, it is clearly understood that there is a linkage between the turbulent business gains and the earnings -management. This has opened up the research gap which has been widely explored by the academicians. The issue that 'can earnings management be associated with business risk' has been explored by many academicians like Ahmed & Sulong (2023). The business risk comprises of the internal and the external risks. The internal risk may be partially reflected in the debt equity ratio, and the external risk may have a reflection in the volatility of the cash from operations. It is expected that the volatile cash from operations may have a linkage with the earnings management.

The objective of this study is to find out whether cash flow volatility and earnings management have any relation in the industry-representative firms in India. We have considered the listed firms of Nifty and we have applied the Modified Jones model to measure earnings management. The niche area of this study along with the Indian context and the broad-based representation of the firms from industry adds to the uniqueness of our study. The excerpt of some seminal works have been discussed in the following section.

2. Literature Review

Accruals play a part in shifting or adjusting cash flow recognition over time so that the adjusted amount more accurately represents the performance of the company. Accruals, however, necessitate estimates and assumptions about future cash flows. The writers contend that the quality of the amount of estimation error in accruals is reducing, similar to the earnings. The residuals from firm-specific regressions of working capital movements on historical, current, and projected operating cash flows are the authors' empirical measure of accrual quality. The authors demonstrate how observable business attributes can be employed as accrual quality tools.

In addition to aligning the time of accounting recognition with the timing of the economic advantages from the sale, recording a receivable speed up the reporting of a future cash flow in earnings. Nevertheless, accruals are usually predicated on conjecture and estimates that need to be adjusted in subsequent accruals and earnings if they are incorrect. The cash collected and the adjustment of the estimation mistake are both recorded in the following item if the net proceeds from a receivable are less than the initial estimate. The authors contend that estimating errors and the corrections that follow are noise that lessens the accruals' usefulness. As a result, the quantity of accrual estimation mistakes is diminishing, as is the quality of accruals and earnings. The degree to which working capital accruals translate into operating cash is the authors' empirical indicator of accrual quality. (Dechow and Dichev, 2002).

Where the prospective net remuneration of the CEO is directly associated with the price of funds and options there the utilization of voluntary approaches to exploit the declared proceeds is more prevalent. The fact that management manipulates results by using accruals on multiple occasions is sufficiently supported by the literature. When CEO incentives are determined by earnings, this becomes apparent. When CEOs own stock, this is the case. They sell for more money when the market responds favourably to bigger profits. This study provides evidence that companies with higher levels of stock-based earnings management also have higher accruals-based earnings management metrics.

The difference between earnings and operating cash flow is used to compute total accrual. The portion of accruals that the CEO has no control over are known as non-DA. This research uses the Jones (1991) model to estimate non-DA, which calculates non-DA as the fitted value from a regression of gross property, plant, and equipment scaled by total firm asset, total accruals on lagged firm size, and the change in firm sales. DA are the difference between non-DA and total accruals (Bergstresser and Philippon, 2006). The NYSE and NASDAQ changed their audit committee standards in December 1999. Companies must have audit committees with a minimum of three directors under the new guidelines, "all of whom have no connection to the business that would make it difficult for them to exercise their independence from the company and management. The SEC's request to increase the efficiency of corporate audit and audit committees in monitoring the financial reporting process is addressed by these new regulations. The SEC is particularly concerned about the company's improper earnings management, which is described as the practice of falsifying the actual financial performance of the business. The implicitly beneficial relationship between earnings management and non-independent audit committees is the area of agreement between the SEC and stock exchange proposals. This paper's goal is to examine this relationship since the efficacy of the audit committee is interwoven with the broader corporate governance process. I also look into whether irregular accruals are connected to the other features of the board. There is a significant inverse relationship between abnormal accruals and the proportion of outside directors on the board and the board with fewer outside directors than the majority (Klein, 2002).

Managers have competing reasons to maximise bonuses or smooth income. It is extremely challenging to determine the relationship between their short-term goals when incentives to smooth earnings are outweighing incentives to maximise bonuses. This is the case because there are more advantages to smoothing earnings than to increasing bonuses. It is probable that the senior level executives in the earlier research were more motivated to smooth their income than to maximise bonuses due to the structure of senior level management remuneration. Earnings management conduct is determined by the impact of stock ownership and compensation as well as managers' reputations (Guidry et al., 1999).

The function of executive compensation contracts in comprehending managerial accrual choices and accounting procedures has piqued the interest of accountants. Among the papers that are frequently cited

that look into how executive pay plans affect accrual choices and accounting decisions is Healy (1985). The author develops the theory that managers have a financial motive to falsify results in order to raise their remuneration for accounts receivable by using the piece-by-piece data for annual bonus plans. These writers cite Healy in particular and remember the conclusion of Healy's study once more. Healy had demonstrated that the objective of the management to pursue DA changes with respect to what he anticipates the earnings will be less than the minimum required needed to receive a bonus over the highest limit, beyond which there is no incentive between the upper and lower bounds.

His findings are intriguing and demonstrate that when anticipated earnings fall between the lower and higher boundaries, there is a greater desire for earnings management.

Chaney and Lewis (1994) attempted to cite a justification for the question why the business executives manipulate the announcement of financial data. Here, it is seen that Earnings Management influences the company valuation when the executives and stakeholders are inadequately notified. This study conducts that all the firms should report their financial statements and earnings following the GAAP and therefore the principles will be universal all over thereby the creation of misinformation will be minimized.

Taufik *et.al* (2015), conducted this research to test the link between real Earnings Management And firm value. It was seen that there was a positive relationship between company valuation and the Earnings Management practices (more REM practices – Increased company valuation). Consequently, it was also proved in this paper that information asymmetry existed to a great extent and mainly that information which is unknown to the shareholders are manipulated by the executives of the company, thereby increasing the company valuation.

Yorke *et.al* (2016) tried to analyze the influence of corporate tax avoidance and Earnings Management on the company valuation by analyzing the relationship of the above two variables and then testing the influence of correlation between the two factors on the company valuation. It is thereby seen in this paper that managers employ various avoidance techniques to show a fake firm value as a result the favourable effect of corporate tax avoidance on company valuation is nullified because of the inverse effect of Earnings Management on company valuation. Though it was considering the Corporate Governance practices followed by the firm, we will be able to see a positive relationship between the company valuation and Earnings Management practices of the firm (i.e., Good Corporate Governance Mechanisms lend to better Earnings Management practices thereby increasing the value of the company).

Abbas and Ayus (2019) tried to prove whether the reports providing the firm's information are beneficial or opportunistic for the firm. In this paper the authors have shown that the resource allocation decisions taken by the management are done using the International Financial Reporting Standards (IFRS) as a result the paper principles and practices have been implemented while preparing the reports. Now, the management may manipulate the financial information (i.e., the earnings of the firm) which can have serious implications for the future of the firm. If the Earnings Management is beneficial then it will be effective for the company eventually and it is detrimental when the Earnings Management is opportunistic for the firm.

Hernawati *et.al* (2021) in their research tries to identify experiential proof of the impact of enhancing earnings on the likely movement of money from firms to the shareholders. Here, the authors have used the modified Jones model through which it is proved that an implementation of the income – increasing strategy increases the firm value for the future time period, as a result all the stakeholders will be benefited to some extent.

Cheng and Warfield (2005) examine the relationship between executives' remunerations arising out of investment in stock market and Earnings Management. This paper has shown that managers with high equity incentives have a greater tendency to see the shares in future and as a result of this they are motivated to inflate the value of the shares by engaging in Earnings Management.

Laux, and Laux (2009) attempted to present that an increase in CEO incentives reflects a failure of corporate governance. The paper also attempted to show the influence of committee formation on the boards.

Ali and Zhang (2013) This paper has tried to prove that the earnings of the CEOs in the initial days are greater in comparison to the latter years. This is because in the early years the CEOs overstate their earnings as they have to survive multiple retention decision in the beginning and as a result, they try to incorporate a high reputation in the market.

Harakeh *et.al* (2019), have tried to focus in this paper that there is a direct link between the CEO incentives and Earnings Management and an inverse link between Earnings Management and the existence of female executives on board. The paper also attempted to demonstrate that female executives perform an impactful role on the connection between Earnings Management practices and the compensation of the CEOs. This research also attempts to show that board diversity has positive consequences for the shareholders as it is proved that greater the diversity nature of the board is – better financial reporting practices are followed and vice-versa and lesser are the cases of fraudulent Earnings Management practices.

Veerma and Kumar (2018) investigated the impact of firm-specific factors on listed businesses' adoption and disclosure of voluntary corporate governance initiatives in the Indian setting. The relevance of corporate governance practices to earnings management having an impact on our research. According to the study's findings, corporate governance is significantly impacted by a company's size, financial leverage, ownership concentration, industry type, audit committee effectiveness, foreign listing status, and external auditor type. An Indian study (Kunal and Phani, 2018) confirmed the IPO underperformance, which is a sign of the companies' earnings management before listing in the share market.

3. Sample and Data Description

3.1 Sample and the Data

We considered starting with industry representatives that have a sizable asset base and sales volume in order to test the existence of DA. To support the purposes of this study, the Nifty, which is published by the National Stock Exchange were examined by us, we have taken fifty companies under Nifty 50 Index. However, we have to eliminate all banking and financial equities since the modified Jones model is not applicable to these firms. State Bank of India, ICICI Bank, Housing Development Finance Corporation (HDFC) Bank, Axis Bank, Yes Bank, Kotak Mahindra Bank, IndusInd Bank, India bulls Housing, and HDFC were not included in the sample. After this our sample finally comprised 38 companies which, according to the major indicators, are representatives of the sector.

Information regarding the current asset (CA), cash balance, total asset, depreciation, sales, property, plant, and equipment (mostly expressed as land, building, plant, and equipment in Indian corporations), current liability (CL), was gathered All data are expressed in crores of Indian rupees. Therefore, the original sample included

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liability (CL), and machinery), total institutional holdings (including banks, FIs, FIIs, and other non-individual entities, if any), short-term loans, and long-term loans were gathered All data are expressed in crores of Indian rupees. Thus, there were 38 firms in the original sample, each with one-year values, or 38 firm-year data. Prior to conducting our experiments, this dataset, as we will now refer to it, had to undergo some testing and validation The dataset indicated above has to be secondary data since it has been taken from PROWESS and annual reports of the firms.

As we have included all the firms of Nifty 50, ours is a non-probabilistic sample. This is because we have taken into account every company that is included in the index. In other words, we have applied our judgment or belief to the major stock exchanges that their indices have included the industry representatives to the best extent possible.

In our sample we have taken the logarithmic values of both Absolute DA and Cash Flow Volatility of 38 companies in Table 1. After computing the Mean and Standard Deviation of the companies we can conclude that since the standard deviation of Log ABSDA is quite low (below 1) so our dataset is very much consistent, the logarithmic value of Cash Flow Volatility is comparatively higher than that of log ABSDA; so, it is less consistent than that of Log ABSDA.

Table 1: Descriptive Statistics

	Mean	Std. Deviation	N
Log ABSDA	3.264397146826907	.543935436231629	38
Log Cash flow Volatility	5.769720736785032	1.690544060861094	38

Table 2: Correlations

		Log ABSDA	Log Cashflow Volatility
Pearson Correlation	Log ABSDA	1.000	.367
	Log Cash Flow Volatility	.367	1.000
Sig. (1-tailed)	Log ABSDA	.	.012
	Log Cash Flow Volatility	.012	.
N	Log ABSDA	38	38
	Log Cash Flow Volatility	38	38

In Table 2 we have computed the Correlations where we can observe the p value is 0.012 which is less than 0.05, which proves that the model is perfectly fitted and the two values Log ABSDA and Log CFV are positively correlated.

3.2 Methodology and Model

H_0 (Discretionary Accruals) depends on Cash Flow Volatility.

To test this Hypothesis, we have computed Linear Bivariate regression which is detailed below:

Regression Equation;

$DA_i = \alpha + \beta(CFV) + \epsilon$ where;

DA is the dependent variable, and CFV is the independent variable There are two sections to the overall analysis. In Part A we have discussed the modified Jones model (Jones, 1991) and DA computation and in Part B we have tried to find out the degree to which certain variables affect DA.

We have employed the modified Jones model to compute the DA. According to the concept, the total accrual—the difference between a company's total earnings and cash flow from operations—must be determined first. A company's overall profits are shown by the shift in current liabilities and assets, which together represent the net change in the firm's cash flow and can alternatively be expressed as a change in working capital level. In theory, it can be computed from the equation (1) according to the model:

$$TA_{i,t} = (\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} - \Delta Dep_{i,t}) / A_{i,t-1} \quad (1)$$

TA represents total accruals, i is the firm i and t is the year. Δ operator represents a one-year change in the variable. CA stands for current assets, CL stands for current liabilities, $A_{i,t-1}$ is the lagged size of assets at year $t - 1$. TA is the measure of total accruals in firms and the absolute value of TA is used as per this model. This shows that all the values of CA, CL, Cash and Depreciation have to be normalised by lagged asset or the asset value of the previous year. The non-DA portion of accruals, which is outside the CEO's control, must then be calculated. Non-DA is estimated by the modified Jones model as the adjusted value from a regression of total accruals on lagged firm size, the change in firm sales and gross property plant and equipment normalised by total firm asset. The non-DA portion of accruals, which is outside the CEO's control, must then be calculated. Non-DA is estimated by the modified Jones model as the adjusted value from a regression of gross property plant and equipment, change in firm sales, and total accruals on lagged firm size, normalized by total firm asset.

The estimated coefficients are then used to construct non-DA according to the equation (2)

$$TA_{i,t} = \alpha_0 + \alpha_1 \times (1/A_{i,t-1}) + \alpha_2 \times (\Delta REV_{i,t}) + \alpha_3 \times (PPE_{i,t}) + \epsilon_{i,t} \quad (2)$$

The ΔREV , it is the change in sales as normalised by lagged assets for firm i and time t and PPE is the gross property plant and equipment again normalised by firm assets. Instead of firm size, the reciprocal of the size is used as that will have the same influence in the regression as the firm size would.

DA are then measured as the difference between the total accruals and non-DA.

The Volatility of Cash Flow have been computed by the mean deviation. The five-year moving average have been used as the mean. The deviation from the moving average has been taken as the volatility.

Our Null Hypothesis for the study is H_0 : (Discretionary Accruals depends on Cash Flow Volatility) and our expectation at this stage is to have a positive relationship between these two variables.

4. Findings and Conclusion

The Regression between the Cash Flow Volatility and the Discretionary Accruals shows some relation which is given in the following Table.

Table 8: Adjusted R Square

Model	R	R Square	Adjusted R Square	Significance -p
1	.132	.102	.051	.03

The findings show some positive relationship between EM and CF Volatility which establishes our Null Hypothesis. Our study shows significant relationship between Cash flow Volatility and Earnings Management. This is in congruence with our hypothesis and also as per the direction of discussions in the established literature. Our results are significant but suffers from a low adjusted R square though R square is much higher. This establishes a dependence of discretionary accruals on cash flow volatility. The difference between R and adjusted R square may have crept in due to overfitting which may be overcome by introducing more variables which controls the relation. Moreover, throughout a long time period the

studies in this field have shown the R squares which ranges from 10 to 30 percent. Introduction of more control variables could not be done due to some constraints but our results establish the fact that at times of volatile cash flows, the managers tend to manage earnings by construction of accruals.

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