Journal of International Business and Economy (2022) **23** (1): 1-19 (19 pages)

JIBE
Journal of International Business and Economy

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EARNINGS MANAGEMENT AND FIRM'S SUBSEQUENT PERIOD PERFORMANCE: A STUDY ON NON-FINANCIAL INDIAN LISTED FIRMS

ABSTRACT

While studies internationally have found an association between earnings management and the firm's future performance, there is limited literature concerning Indian firms. Prior research in the Indian context has revealed the existence of opportunistic accruals management. However, its impact on a firm's future performance remains unexplored. Thus, this study examines the impact of accrual-based earnings management on future performance among listed non-financial Indian firms. This study estimates accruals management proxies for 2006-2017 using the widely accepted modified-Jones model of discretionary accruals. Firm performance is measured using ROA, ROE, and PE ratio. This study uses a one-step System Generalised Method of Moments (GMM) to address the problem of endogeneity in the dynamic panel model. The result from the estimator indicates that discretionary accruals have a negative impact on accounting-based performance measures (ROA and ROE) and a positive impact on the market-based performance measure (PE ratio). These results are consistent for the three estimators (OLS, FE, and GMM), establishing a robust relationship between accrual management and firm performance. The findings of this study are consistent with the signaling hypothesis and suggest the likelihood of accruals reversal.

Keywords: accrual management, earnings management, generalised method of moments, India, firm performance

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INTRODUCTION

Earnings management (EM) is a deliberate attempt to mask a firm's actual performance either to mislead stakeholders or to avail contractual benefits. Prior studies have reported several empirical evidence concerning EM behavior and have examined EM through diverse theoretical perspectives. In particular, two theories extend opposing views in explaining EM-agency theory and the revelation principle.

The agency theory provides the best explanation for the opportunistic EM behavior of the firm. Since shareholders and managers have non-congruent goals where both parties aim at maximizing their individual gain (respective utility functions) without giving due consideration to each other's role, it adds to the agency problem. Further, shareholders pursue different investment horizons. Some investors focus on the immediate or short-term value, while others may be interested in the firm's long-term value. Similarly, from the managerial perspective, those managers who plan to pursue long-term career growth are interested in the firm's long-term value and emphasize the growth of shareholders' wealth.

In contrast, managers interested in high pay-off or job switchover are short-sighted and would invest in projects that reflect appealing performance for the firm in the short-run without any regard for shareholders' wealth. Therefore, the extent of the agency problem determines managerial behavior. As the agency problem intensifies, the behavior of managers changes from obedience to self-interest and thereafter to opportunism. This progressive change in managerial behavior involves earnings management (Giroux, 2004, as cited in Diri, 2017).

The Revelation Principle, on the other hand, is an attempt to identify ideal situations in which the EM is not a serious concern. It epitomizes a firm in an ideal situation with no agency problem. The managers are better off revealing the truth to avoid penalties for misreporting a firm's poor performance (Romen and Yaari, 2008). As the management's effort is dedicated to improving the firm's performance (Milgrom and Roberts, 1992), shareholders can maximize their utility. In this way, the interests of both parties are met, and the problem of conflict of interests is resolved. However, the assumptions of the revelation principle are far from real-world situations and are often not met. Violation of the assumptions of the revelation principle is explained by three economic theories viz. contracting theory, bounded rationality, and information asymmetry. These violations make the revelation principle inapplicable, leaving scope for earnings manipulation by managers (Walker, 2013).

EM is achieved by exercising management discretion to report the desired level of earnings either through accounting choices or operating decisions[1]. In EM literature, the former is popularly known as accrual management (AM) and the latter known as real earnings management (REM). This study is directed towards understanding the impact of accrual management on a firm's future performance.

Accrual management occurs when management exercises discretion over accounting choices in reporting a transaction in the books of accounts. Such discretion merely classifies a business transaction uniquely from among the available accounting choices. It does not

[1] What is Earnings Management? p.1. http://www.swlearning.com/pdfs/chapter/0324223250_1.PDF. Accessed on May 27, 2022.

affect the real cash flows of the firm. For example, while adopting an alternate method for inventory valuation or depreciation, the value of the inventories or the operating expenses will alter, but without any change in cash flows. Likewise, under/overstatement of provision for bad debts would affect earnings and not actual cash flows. These management discretions often raise questions on the legality of such practices. However, EM per se is not illegal. There is a difference between legal and illegal EM, the latter termed as fraudulent accounting. Dechow and Skinner (2000: 239) explain this difference by characterizing different management choices into two broad categories. They are: (1) within Generally Acceptable Accounting Principles (GAAP) and (2) violating GAAP. The management choices within the provisions of GAAP are classified as EM, while those that violate GAAP are termed fraudulent accounting. Therefore, as long as the discretions over accounting choices conform with GAAP, EM is not classified as an illegal activity.

The accrual accounting system provides scope for ample discretion to management over accounting choices in recording a transaction. When used judiciously in the interest of shareholders (for example, to disclose additional information not known to the outsiders), discretion over accounting choices would result in an increased value of the firm. However, opportunistic use of discretions by management for their self-interest results in a loss in the firm's value.

REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

The extant literature on EM suggests that management either uses discretionary accruals for opportunistic behavior or to signal private information about the firm. When managers exercise discretion in accounting choices to make personal benefits at the expense of the shareholders, it is termed opportunistic EM. However, managerial discretion in accounting choices can also be used to signal private information about the prospects of the firm.

Earnings management and firm performance

A negative relationship between EM and a firm's future performance has been documented in several studies in the literature. Firms that engage in EM for informative purposes show improved performance in subsequent periods while those engaging for opportunistic purposes end up showing poor performance in subsequent periods (Chen, Lin, Chang, and Lin, 2013). Accordingly, opportunistic EM leads to a decline in the performance of a firm in subsequent periods, as managers indulge in it to hide poor performance or inefficiencies in the firm's future prospects. When the market discovers the hidden information on poor firm performance, the expectations of investors shatter and lead to a downfall in the firm's stock price. The management's attempt to hide unfavorable information about the firm through EM accumulates over time. The accumulated hidden negative information, on reaching its tipping point, becomes unsustainable and managers end up dumping them in the market at once, as was in the case of the Satyam Computers Scam of 2009, which results in a huge negative return for the firm's share in the market (Francis, Hasan, and Li, 2016).

On the other hand, when managers engage in EM to reveal private information (informative purposes) about the firm to outsiders, the additional information revealed by them assist investors to make more informed decision about the firm's future prospects. Since, the management will reveal information only after careful evaluation of several

internal and external factors affecting the firm's future prospects, the investors are likely to be benefited by using such information in their decision-making.

Prior research advocates that management indulges in opportunistic EM behavior causing underperformance of firm's stock in the future (Shivakumar, 2000; Yang, Hsu, and Yang, 2013) or causing poor operating performance of firms (Gill, Biger, Mand, and Mathur, 2013; Tang and Chang, 2015).

Accrual earnings management and firm performance

EM is influenced by a wide set of factors. While examining the factors affecting EM among Indian listed firms, Das, Mishra, and Rajib (2018) find a prevalence of both AM and REM in the Indian listed firms. They conclude that firm-specific factors such as market-to-book ratio, financial leverage, return on asset, and business group affiliation are significantly positively associated with EM, whereas a firm's size, age, and institutional ownership are negatively associated. Further, EM practices are likely to vary among firms based on the sector in which they operate. For example, Goel (2012) provides statistically significant evidence of EM through income-increasing discretionary accruals in their sample and shows sector-wise differences in earnings manipulation practiced by firms. While service sector firms adopt income-increasing discretionary accruals, the non-service sector firms engage in income-decreasing discretionary accruals. Earlier literature also indicates that EM practices are more prominent for firms undergoing financial turmoil. In this regard, Agrawal and Chatterjee (2015), upon examination of 150 financially distressed Indian firms, report less distressed firms engage more in accrual-based earnings management.

Prior studies have examined accrual-based earnings management in corporate events like initial public offerings (IPOs), seasoned equity offerings (SEOs), and its impact on the post-issue performance of the firm. The evidence from the literature suggests that entrepreneurs opportunistically manipulate accruals upward, prior to going public, in order to portray better prospects for their firms and extract high issue prices from investors (DuCharme, Malatesta, and Sefcik, 2001; Mangala and Dhanda, 2019; Teoh, Wong, and Rao, 1998). However, in subsequent periods when accruals reverse, firms show poor performance with a decline in earnings, leading to decreased post-IPO returns to the investors. Similar findings are also documented for firms going for SEO (Mangala and Dhanda, 2019; Rangan, 1998; Shivakumar, 2000; Teoh, Welch, and Wong, 1998). The poor subsequent period performance for firms engaged in opportunistic accrual management in the current period can thus be attributed to the reversal of accounting accruals in subsequent periods.

In a recent study, Chakroun, Amar, and Amar (2022) found a negative impact of accruals management on the financial performance of French firms listed on the CAC-All-Tradable index. Further, they found that those firms which adopt the corporate social responsibility guidelines are able to moderate the negative impact of AM on their financial performance.

The literature review indicates that though EM in the current period project good performance of a firm, it jeopardizes its future performance. Consequently, the investors and the market identify the firm's EM activities and incorporate such information in the future valuation of stocks. Accordingly, the study hypothesises that accruals management has a negative impact on the future performance of firms and frames the hypothesis as:

Hypothesis 1: Accruals management affects a firm's future performance negatively.

DATA, VARIABLES AND MODEL

Sample and data

This study uses data gathered from the Prowess IQ database, maintained by the Centre for Monitoring Indian Economy (CMIE). The sample selection process for this study begins with all non-financial firms listed on NSE as of March 31, 2016. Our initial sample consisted of 1,696 non-financial NSE listed firms belonging to 63 diverse industries as per the 2-digit NIC classification. To compute AM measures, at least 20 observations from the industry must be available. Thus, in the next step, we further eliminate 303 firms, leaving behind 1,393 firms across 25 industries. Moreover, to compute future performance, data relating to performance measures are required on a lead year basis (2006-2018). These criteria lead to the further exclusion of 1,285 firms on account of the non-availability of data for the entire study period (2006 - 2018). Our final sample thus comprises a balanced panel of 108 non-financial firms for 12 years (2006-2017) belonging to 21 different industries as per the 2-digit NIC classification.

Variable measurement

Accruals management (AM) measure

The most widely used measures of AM in accounting research are based on different variants of the (Jones, 1991) model. These model variants classify companies in different industries to compute discretionary accruals (DA) - a proxy for accruals-based earnings management.

The original model of Jones (1991) had no scope for capturing discretionary revenue management and hence was modified by Dechow, Sloan, and Sweeney (1995). The latter study differenced out the changes in receivables from the changes in revenues which was used as one of the regressors in the original model of Jones. Further, the original model of Jones used time-series data to compute firm-specific DA, which led to the problems of non-stationarity, survivorship biases, etc. To overcome such problems, DeFond and Jiambalvo (1994) suggest a cross-sectional approach to compute industry-year specific DAs instead of firm-specific DAs as a proxy for accruals management.

The present study uses two variants of the Jones model to derive the accruals management proxy. The first metric of accruals management is derived by using the method of Dechow et al. (1995). The following cross-sectional equation is estimated for each industry (at two-digit of the NIC code) and year with at least 20 observations from the companies listed on the Bombay Stock Exchange (BSE):

$$TAC_{it} = \alpha_0 + \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \Delta AdjREV_{it} + \alpha_3 PPE_{it} + \varepsilon_{it} \quad (1)$$

where:

TAC_{it} is total accruals (net income *minus* cash flow from operations) of the firm *'i'* in year *'t'* scaled by lagged total assets;

TA_{it-1} is lagged total assets of the firm *'i'*;

$\Delta AdjREV_{it}$ is the change in sales revenue less change in receivables of the firm *'i'* in year *'t'* over year *'t-1'* scaled by lagged total assets;

PPE_{it} is property, plant, and equipment (gross) of the firm *'i'* in year *'t'* scaled by lagged total assets.

The residuals ε_{it} from equation 1, measures discretionary accruals (*DAC_1*).

The second variant of discretionary accrual used in the study is a performance-adjusted measure of DA. The study by Kothari, Leone, and Wasley (2005) suggest the inclusion of a performance measure: the return on assets (ROA), in the modified Jones model to control for the impact of a firm's performance on unexpected accruals. The following model is estimated cross-sectionally for each industry and year with at least 20 observations from the companies listed on the BSE for each industry:

$$TAC_{it} = \alpha_0 + \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \Delta AdjREV_{it} + \alpha_3 PPE_{it} + \alpha_4 ROA_{it} + \varepsilon_{it} \quad (2)$$

where:

ROA_{it} Return on Assets of the firm *'i'* in year *'t'* is computed as Net Income over lagged total assets.

The remaining variables: TAC_{it} , $\Delta AdjREV_{it}$, and PPE_{it} , are defined as in the previous model (1). The estimated residuals of equation (2) measure the performance-adjusted discretionary accruals (*DAC_2*).

Firm performance measure

Several measures of financial performance have been used in the literature on corporate financial performance. These can be broadly categorized as accounting-based measures, market-based measures, and comprehensive measures. For instance, Kyereboah-Coleman (2007) uses Return on Assets (ROA) and Return on Equity (ROE). In another study, Chakravarthy (1986) uses Return on Sales (ROS), Return on Total Capital (ROTC) and Return on Equity (ROE) as profitability measures of a firm's performance. In addition, Chakravarthy (1986) has also used MTB (Market to Book Ratio) as a market measure of performance, and Altman's Z factor as a comprehensive measure of firm performance. Similarly, Zeitun and Tian (2007) used both accounting measures of firms' performance (ROA, ROE, and EBIT) and market-based performance measures such as the Price Earnings ratio (PE ratio), the Market value to the book value of equity (MTB) and Tobin's Q.

The studies investigating the effect of EM on the future performance of firms often use ROA as an accounting measure of performance (Cohen and Zarowin, 2010; Gunny, 2005; Huang and Sun, 2017; Tang and Chang, 2015; Taylor and Xu, 2010). A few other measures of firm performance that is used by previous scholars are Cash flow from operating activities (OCF) scaled by total assets (Huang and Sun, 2017; Taylor and Xu, 2010), size-adjusted stock returns (SAR) (Taylor and Xu, 2010), Tobin's Q ratio (Tang and Chang, 2015), and abnormal stock returns (Gong, Louis, and Sun, 2008).

Table 1. Variable definition.

Variables	Definition
Dependent Variables	
ROA_{t+1}	Profit after tax net of prior period and extraordinary transactions divided by average of total assets at the beginning and at the end of the year
ROE_{t+1}	Profit after tax net of prior period and extraordinary transactions divided by net worth
PE_{t+1}	Price-earnings ratio
Control Variables	
SIZE	Natural logarithm of total assets
GROWTH	Difference of Sales revenue in the year t and t-1 divided by the sales revenue in the year t-1
ZSCORE	Altman's Z-Score measured as 3.3 × [EBIT /Total Assets] + 1.0 × [Sales /Total Assets] + 1.4 × [Retained earnings/Total Assets] + 1.2 × [Working capital/Total Assets]
DE	Ratio of debt to equity of a firm as measure of leverage.

Source: The Authors

The present study uses three measures of firm performance i.e., two accounting-based measures of performance – Return on Assets (ROA) and Return on Equity (ROE), and one market-based performance measure – Price-to-earnings ratio (PE). The definitions of these variables are highlighted in Table 1.

Control Variables

This study uses Firm Size (SIZE), Sales Growth (GROWTH), Altman Z-score (ZSCORE) and Debt Equity Ratio (DE) as control variables.

Generally, firm size and firm profitability are expected to depict a positive association implying that if a firm grows in size, the profitability of the firm would rise. Larger firms possess greater resources and are considered to be endowed with many advantages such as lower costs and higher returns on account of economies of scale. In this regard, Kuncová, Hedija, and Fiala (2016) examining firm size as a determinant of firm performance finds that larger firms reached higher economic performance compared with smaller ones indicating the role of economies of scale available to firms with the larger size. In contrast, (Raja and Kumar, 2005) find that firm size has a negative association with firm performance for manufacturing firms in India. In line with existing literature, we have employed the log of total assets as the measure of size in this study.

A positive growth rate in sales is indicative of higher business volume and higher revenues. In a situation where changes in expenses do not exceed the changes in sales and assuming all other factors are constant, a positive growth rate in the sale will enhance the firm's performance. In a similar direction, Odalo, Achoki, and Njuguna (2016) examined the effect of sales growth on financial performance and found a positive and significant effect with some performance measures (ROA and ROE) while a negative but insignificant effect on other (EPS). Contrarily, in a situation where the expenses of the firm exceed far

beyond the sales growth, both the accounting and market performance of a firm will decrease. Thus, there appears a negative relationship between sales growth and firm performance.

The Altman Z-score is a measure of the credit strength of a firm and gauges how likely a firm is towards bankruptcy. An Altman Z-Score of less than 1.8 is undesirable as such firms are prone to bankruptcy. Thus, a higher Z-score means a firm is financially sound and strong. In the Indian context, the results from previous studies indicate a positive association between Z-Score and firm performance. For instance, in a study conducted by Liang and Pathak (2019), the researchers found a statistically significant and positive relationship between performance and Z-score among Indian manufacturing firms.

Leverage is widely used in prior studies concerning firm performance (Bothwell, Cooley, and Hall, 1984; Paint, 1991). Leverage magnifies the shareholders' earnings when the cost of debt is lower than the company's rate of return. A highly leveraged firm, in addition to incurring higher interest expenses, will also face restrictions on certain business activities due to debt covenants Therefore, there arises a negative relationship between firm performance and leverage. We used the ratio between debt and equity to compute leverage, which indicates the owner's stake in the business.

Model specification

This study estimates the following dynamic panel model to examine the relationship between AM and firms' future performance:

$$FirmPerf_{i,t+1} = \beta_0 + \beta_1 AM_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 GROWTH_{i,t} + \beta_4 ZSCORE_{i,t} + \beta_5 DE_{i,t} + \beta_6 FirmPerf_{i,t} + \beta_7 YearDummies + \varepsilon_{i,t+1} \quad (3)$$

The dependent variable $FirmPerf_{i,t+1}$ is measured by two accounting-based and one market-based firm performance as specified in section *"Firm Performance Measure"* above. The key explanatory variable in the model $AM_{i,t}$ has two proxies: DAC_1 and DAC_2 as explained in the section *"Accruals Management (AM) Measure"*. The coefficient β_1 captures the relationship between AM and the firm's future performance. If AM has a negative impact on a firm's future performance, the coefficient β_1 would be significantly negative.

RESULTS AND DISCUSSIONS

Descriptive statistics

Table 2 presents the descriptive statistics of the variables. Comparing the two accounting measures of performance, it is observed that the ROE of the sample firms is relatively better than their ROA. The mean value of 0.178 for ROE while that of 0.095 for ROA, indicates that firms in the sample are providing about 18 percent return to equity shareholders but are generating only about 10 percent of return from their assets. The high standard deviation of ROE (0.100) compared to (0.062) for ROA signifies the high-risk characteristic of equity shareholders. The variations in ROE among sample firms are higher than the variations in their ROA. The ROE varies in the range of about 1 to 50 percent while the ROA varies in

the range of 0.03 to 30.5 percent. The average value of the PE ratio – the market measure of performance – is 17.58 implying that on an average, the market price of shares is about 18 times its earnings per share (EPS).

The mean value of DAC_1 is 0.008, which indicates that firms on average manage earnings upwards to the extent of 0.08 percent of total assets. On the other hand, the mean value of -0.012 for DAC_2 indicates downward EM by firms to the extent of 1 percent of their total assets. The minimum and maximum values of -0.211 and 0.245 respectively for DAC_1 and -0.223 and 0.222 respectively for DAC_2, indicate that firms in the sample are engaged in both income-increasing as well as income-decreasing AM.

Table 2. Descriptive statistics.

Variables	N	Mean	Median	Std. Dev	Min	Max
ROA	1,296	0.095	0.082	0.062	0.003	0.305
ROE	1,296	0.178	0.164	0.100	0.009	0.504
PE	1,296	17.584	14.435	13.597	2.450	82.210
DAC_1	1,296	0.008	0.008	0.077	-0.211	0.245
DAC_2	1,296	-0.012	-0.012	0.074	-0.223	0.222
SIZE	1,296	9.428	9.364	1.409	6.023	13.296
ZSCORE	1,296	5.366	3.632	4.780	1.208	28.268
GROWTH	1,296	0.147	0.125	0.187	-0.289	0.870
DE	1,296	0.579	0.440	0.556	0.000	2.330

Source: The Authors

The mean (median) value of firm size is 9.428 (9.364) with a minimum of 6.023 and a maximum of 13.296. The average Altman's Z-Score value of 5.366 is well above the cut-off value of 1.8 *(below which a firm is considered to be financially distressed)*. This signifies that on average, firms in the sample are financially well off. However, the minimum value of ZSCORE is 1.208 which indicates that the sample includes some firms that are financially distressed. The mean value of 0.147 for GROWTH implies that firms in the sample have an average annual sales growth rate of about 15 percent. The mean of 0.579 for the Debt-Equity Ratio (DE) indicates the larger composition of debt in the capital structure of sample firms.

Correlation analysis

Table 3 reports the Pearson's correlation coefficient among the variables. ROA and ROE show a positive and significant correlation with DAC_1 and a negative and significant correlation with DAC_2. Since DAC_1 and DAC_2 portray correlations in opposite directions with ROA and ROE, the relationship between AM and the accounting performance of a firm is inconclusive. Similarly, the PE ratio shows a positive but insignificant correlation with both discretionary accrual measures. Overall, the relationship between EM and future firm performance is not clear from the bivariate analysis. The correlation coefficients are statistically significant for almost every pair but are not too high in magnitude ($|r| \not> 0.7$) among the explanatory variables. Hence, multicollinearity

among explanatory variables can be ruled out (Dormann et al., 2013). and we can safely move towards the multivariate analysis.

Table 3. Correlation matrix.

	ROA	ROE	PE	DAC_1	DAC_2	SIZE	ZSCORE	DE
ROE	0.849***							
PE	-0.007	-0.113***						
DAC_1	0.152***	0.061**	0.010					
DAC_2	-0.076***	-0.108***	0.016	0.910***				
SIZE	0.125***	0.082***	0.247***	0.107***	0.041			
ZSCORE	0.588***	0.323***	0.400***	0.083***	-0.080***	0.156***		
DE	-0.373***	-0.039	-0.181***	-0.025	0.087***	-0.109***	-0.544***	
GROWTH	0.311***	0.404***	-0.063**	0.007	0.001	-0.056**	-0.001	0.170***

Note: ** and *** indicates significance at 5% and 1% level or stronger.
Source: The Authors

Multivariate analysis – OLS and fixed-effect (FE) estimators

The empirical results from the multivariate analysis using OLS, and FE estimators are presented in Table 4. DAC_1 and DAC_2 in OLS regression depict negative and highly significant coefficients when regressed against ROA_{t+1} and ROE_{t+1}. Therefore, AM has a negative impact on a firm's future accounting performance which is consistent with our hypothesis. However, DAC_1 and DAC_2 display a positive and significant relationship with PE_{t+1} and is inconsistent with the stated hypothesis. The positive association between PE ratio and AM is suggestive of signalling hypothesis where the managers choose to reveal their expectations about the future prospects of a firm's cash flow (Holthausen, 1990; Holthausen and Leftwich, 1983).

The control variable ZSCORE is positively and significantly related to all the three performance measures, signifying that financially strong firms show better performance in a subsequent period. On the other hand, DE is related negatively to ROA_{t+1} indicating that highly leveraged firms exhibit poor performance in the subsequent period. Sales growth (GROWTH) shows a positive and significant association with ROE_{t+1} and ROA_{t+1} *(when DAC_2 is used as AM proxy in the model)*. The relationship of firm size with $PE_{t+1,}$ is positive and significant as larger firms command a better reputation in the market and are preferred by investors (Reinganum and Smith, 1983).

Overall, the results of OLS estimators indicate that firms engaged in AM in the current period tend to show poor accounting performance, but they report better market performance in the subsequent period. Larger firms show better market performance because investors prefer large firms over small firms (Reinganum and Smith, 1983). Similarly, financially healthy firms tend to perform better in the subsequent period across both performance measures.

Alike the OLS estimator, the results of the FE estimator –presented in Table 4– show a significant negative relationship between AM proxies DAC_1 and DAC_2 and the accounting performance measures ROA_{t+1} and ROE_{t+1}. The strong negative relationship supports the hypothesis that AM has a negative impact on the firm's future performance.

Consistent with the results of OLS estimators, the relation between discretionary accruals and the P/E ratio is significantly positive. Thus, the relation between AM and the firm's future performance is uniform across both OLS and FE estimators, thereby signifying the robustness of the results.

From the results of OLS and FE estimators, an important point to be noted is that the coefficients of performance measures are positive and highly significant *(at 1 per cent level)*. This indicates that a firm's future performance is positively associated with its past performance and develops a dynamic relationship between AM and the firm's future performance. However, the OLS estimators are biased and inconsistent in a dynamic panel model, and the fixed-effect (FE) estimators suffer from Nickell (1981) downward biasness (Baltagi, 2013: 155–156)[2]. Therefore, the study subsequently used the Generalised Method of Moments (GMM) estimators to obtain efficient estimates for the dynamic panel model.

[2] According to Baltagi (2013, p. 155-156), the OLS estimator is biased upwards while the FE estimator is downward biased in the case of a dynamic panel model.

Table 4. OLS and Fixed-Effect estimation results for the impact of AM on firm's future performance.

Variable	Expected Sign	ROA_{t+1}				ROE_{t+1}				PE_{t+1}			
		OLS		FE		OLS		FE		OLS		FE	
Intercept	?	0.043**	0.044**	0.429**	0.431**	0.062**	0.060**	0.663**	0.670**	-3.473*	-3.536*	-21.263	-21.805
		(5.03)	(5.17)	(8.75)	(8.81)	(4.64)	(4.79)	(8.88)	(9.02)	(-1.67)	(-1.69)	(-1.47)	(-1.51)
DAC_1	(-)	-0.063**		-0.046**		-0.119**		-0.098**		8.249*		7.030*	
		(-4.26)		(-3.14)		(-4.64)		(-3.72)		(2.23)		(1.93)	
DAC_2	(-)		-0.056**		-0.041**		-0.099**		-0.085**		8.481*		8.571*
			(-3.58)		(-2.71)		(-3.67)		(-3.07)		(2.19)		(2.26)
SIZE	?	-0.000	-0.001	-0.043**	-0.043**	0.001	0.001	-0.066**	-0.067**	1.063**	1.088**	3.781*	3.873*
		(-0.52)	(-0.59)	(-7.65)	(-7.69)	(0.63)	(0.51)	(-7.62)	(-7.74)	(4.97)	(5.10)	(2.15)	(2.22)
GROWTH	?	0.012	0.014*	0.021**	0.022**	0.025*	0.026*	0.044**	0.046**	-2.229	-2.154	-5.232**	-5.228**
		(1.58)	(1.74)	(2.79)	(2.94)	(1.88)	(1.95)	(3.47)	(3.60)	(-1.39)	(-1.34)	(-3.25)	(-3.25)
ZSCORE	(+)	0.002**	0.002**	0.001**	0.001**	0.002**	0.002**	-0.000	-0.000	0.356**	0.379**	0.258**	0.277**
		(5.42)	(5.40)	(2.79)	(2.78)	(3.60)	(3.30)	(-0.37)	(-0.49)	(4.13)	(4.37)	(2.63)	(2.81)
DE	(-)	-0.007**	-0.007**	-0.007*	-0.007*	0.005	0.006	0.020**	0.020**	-0.005	-0.036	0.796	0.661
		(-3.17)	(-3.27)	(-1.73)	(-1.74)	(1.33)	(1.44)	(2.79)	(2.84)	(-0.01)	(-0.05)	(0.57)	(0.47)
ROA	(+)	0.628**	0.608**	0.463**	0.448**								
		(19.53)	(19.26)	(12.81)	(12.54)								
ROE	(+)					0.630**	0.616**	0.466**	0.452**				
						(25.14)	(24.58)	(15.19)	(14.79)				

Variable	Expected Sign	ROA $_{t+1}$				ROE $_{t+1}$				PE $_{t+1}$			
		OLS		FE		OLS		FE		OLS		FE	
PE	(+)									0.490**	0.485**	0.254**	0.249**
										(11.07)	(11.03)	(5.63)	(5.55)
Year Dummies		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2		0.5817	0.5872	0.6276	0.6271	0.5664	0.5664	0.6156	0.6156	0.4529	0.4529	0.5070	0.5075
F		106.93**	95.69**	28.72**	28.13**	100.52**	99.35**	49.16**	48.44**	64.06**	64.07**	37.36**	37.35**
Prob. > F		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N		1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296

Note: * and ** indicates significance at 5% and 1% level or stronger.
Source: The Authors

Multivariate analysis – GMM estimator

With an aim to overcome the problem of endogeneity and unobserved heterogeneity in dynamic panel models, Arellano and Bond (1991) propose a first-difference Generalised Method of Moments (FD-GMM) estimator. FD-GMM uses additional lag values of regressors as instruments to give consistent estimates. Additionally, Blundell and Bond (1998) suggest a more efficient "System GMM estimator" as an improvement over the FD-GMM model. Following Bond, Hoeffler, and Temple (2001), the study uses a system GMM estimator to estimate the dynamic panel model as presented in *Equation 3***.** The results of the GMM estimation are presented in Table 5.

Two critical specification tests were performed before using GMM estimation in a dynamic panel model. The first test relates to second-order serial correlation, which checks if enough lags have been used to control for the dynamic relationship. This test is crucial as GMM estimation assumes that there exists no second-order serial correlation [AR (2)] in the error term of the first-differenced equation. The requirement of no AR (2) for the GMM estimator is to ensure that lags beyond the second lags of regressors are strictly exogenous to the model. The test for no second-order serial correlation [AR (2)] proposed by Arellano and Bond (1991) is not rejected (refer to Table 5), thereby validating the condition of no second-order serial correlation. The second test relates to the validity of instruments used in the GMM estimation. Sargan test statistics and Hansen J-statistics are performed to check the validity of instruments used in the Blundell-Bond one-step system GMM estimation. Both the test statistics reported in Table 5 are rejected indicating that the instruments chosen are valid.

The two AM proxies viz. DAC_1 and DAC_2 are found to have a significant negative impact on ROA_{t+1}, which is consistent with the findings of OLS and FE estimators presented in Table 4. The estimated coefficient of DAC_1 is -0.085 while that of DAC_2 is -0.047. Both are significant at 1 percent level of significance supporting the hypothesis that AM has a negative impact on firm's subsequent period ROA. The results further show a significant negative relationship between both AM proxies and ROE_{t+1}. The estimated coefficient of DAC_1 is -0.139, and that of DAC_2 is -0.078, and both are significant at a 1 percent level of significance. This provides support for the hypothesis that AM by firms affects their ROE negatively in the subsequent period and is also consistent with the findings of OLS and FE estimators.

Table 5. One-step system GMM estimation results for the impact of AM on the firm's future performance.

Variable	Expected sign	ROA $_{t+1}$		ROE $_{t+1}$		PE $_{t+1}$	
Intercept	?	0.055***	0.058***	0.074***	0.079***	-1.929	-2.053
		(5.34)	(5.64)	(4.76)	(5.02)	(-0.69)	(-0.73)
DAC_1	(-)	-0.085***		-0.139***		10.63***	
		(-4.42)		(-4.50)		(2.54)	
DAC_2	(-)		-0.047***		-0.078***		9.706***
			(-2.56)		(-2.59)		(2.50)
SIZE	(+/-)	-0.002**	-0.002**	-0.001	-0.001	1.614***	1.651***
		(-2.08)	(-2.20)	(-0.38)	(-0.62)	(5.04)	(5.13)
GROWTH	?	-0.03***	-0.03***	-0.05***	-0.05***	-2.45	-2.42
		(-3.30)	(-3.17)	(-3.32)	(-3.16)	(-1.28)	(-1.25)
ZSCORE	(+)	0.000	0.000	0.000	0.000	0.317**	0.340***
		(0.87)	(0.89)	(-0.22)	(-0.36)	(2.42)	(2.60)
DE	(-)	-0.003	-0.004	0.009**	0.009*	-0.841	-0.862
		(-0.92)	(-1.24)	(2.03)	(1.91)	(-0.92)	(-0.94)
ROA	(+)	0.758***	0.735***				
		(8.77)	(8.80)				
ROE	(+)			0.728***	0.715***		
				(13.17)	(12.86)		
PE	(+)					0.241***	0.236***
						(6.55)	(6.46)
Year Dummies		Yes	Yes	Yes	Yes	Yes	Yes
N		1,296	1,296	1,296	1,296	1,296	1,296
No. of Firms		108	108	108	108	108	108
No. of Instruments		29	29	29	29	29	29
No. AR (1) z-stat		-6.44***	-6.49***	-7.11***	-7.11***	-5.67***	-5.69***
Prob. > z		0.000	0.000	0.000	0.000	0.000	0.000
No. AR (2) z-stat		-1.01	-1.10	-1.37	-1.46	0.31	0.31
Prob. > z		0.315	0.273	0.169	0.144	0.758	0.755
Sargan chi²(11)		10.92	10.72	13.10	14.02	10.16	9.75
Prob. > chi²		0.450	0.467	0.287	0.232	0.516	0.553
Hansen chi²(11)		11.43	12.05	14.11	15.42	18.51	18.11
Prob. > chi²		0.408	0.360	0.227	0.164	0.071	0.079
F		41.31***	41.78***	62.60***	59.32***	31.02***	31.00***
Prob. > F		0.000	0.000	0.000	0.000	0.000	0.000

Note: *, ** and *** indicates significance at 5% and 1% level or stronger.
Source: The Authors

However, the relationship between AM and $PE_{t+1,}$ is positive and significant. The coefficients of DAC_1 and DAC_2 are 10.63 and 9.706 respectively and are significant at a 1 per cent level. This confirms the finding from Table 4 that firms that engage in AM have better market performance in the subsequent period. This result contradicts, our stated

hypothesis and is in favor of the signalling hypothesis of (Subramanyam, 1996) which states that managers use discretionary accruals to signal private information about the firm to shareholders who are otherwise relatively less informed about the firm's operations and its future opportunities/profitability.

The control variable SIZE has a significant negative relationship with ROA_{t+1}. Similarly, GROWTH has significant negative relationships with both the accounting performance measures: ROA_{t+1} and ROE_{t+1}. Thus, large firms and growth firms tend to perform poorly in terms of accounting measures of performance. The control variables SIZE and ZSCORE have a significant positive relation with PE_{t+1}, which indicates that large firms and financially stable firms tend to show better market performance.

In conclusion, the results of the three estimators (OLS, FE and GMM) are consistent with the relationship between AM and the firm's future performance and thus, can be considered robust. The three estimators show a significantly positive relation between AM and the firm's future market-based performance, while the relation between AM and firm's future accounting-based performance is significantly negative. Among the control variables, the relationship between firm size (SIZE) and PE_{t+1} and between financial health (ZSCORE) and PE_{t+1} is consistent in all three estimation methods.

SUMMARY AND CONCLUSION

The impact of AM on future firm performance is the area of this study. The modified Jones model is used to calculate discretionary accruals in two forms. It is observed that while discretionary accruals have a negative impact on accounting-based performance metrics (ROA and ROE), they have a beneficial impact on market-based performance measures (PE ratio). These findings are consistent across all estimators (OLS, FE, and GMM), establishing a robust relationship between AM and the firm's subsequent period performance.

According to the findings of this study, companies that manage their earnings through accruals in the current period have a higher profit-to-earnings ratio but a worse ROA and ROE in the future. For the reason that accruals are reversible, AM has a negative association with accounting performance measures. This means that inflating (deflating) incomes (expenses) to report desirable earnings for the present period leads to poor future accounting performance as accruals reverse. In contrast, the finding of a positive relationship between AM and price-to-earnings ratio may be attributed to the prevalence of signalling hypothesis of (Subramanyam, 1996) and justifies (Romen and Yaari, 2008) contention of beneficial EM.

This study's findings have a number of management implications. First, the inverse relationship between AM and future accounting performance informs managers about the negative effects of EM and warns them to use flexibility judiciously in accordance with GAAP. Second, the discovery of a positive association between AM and PE ratio underpins the power that managers wield over market value.

There are few limitations of the study thereby opening up the scope for future research. First, the findings of this study cannot be applied to Indian financial enterprises for the limitation of the model used to proxy earnings management. We, therefore, suggest that future research may be conducted on financial sector firms by using appropriate EM

proxy to test the relationship between AM and financial performance. Secondly, the study focuses on earnings management using discretionary accrual and the performance is measured using ROA, ROE and PE ratio. In future research, alternative measures of EM and financial performances may be used to test the hypothesis of the study. The findings of the study may not be applicable for firms listed in other emerging countries due to differences in the various institutional and regulatory environments in which they operate. It would, therefore, be interesting to study the relationship between EM and firm performance of firms from other emerging economies by using a cross-country sample.

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