

Real Earnings Management and Persistence of Firm Value: Evidence from India*

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Abstract

The present study aims to examine the impact of real earnings management on the future value of the firm and its persistence. The study also tests suspect firm effects on the relationship between real earnings management and the future value of the firm. The sample of the present study consists of all listed non-financial firms from the year 2011 to 2018. Real earnings management has been measured in three alternative ways viz., abnormal operating cash flows, abnormal discretionary spending, and abnormal production cost. Tobin's Q is used as a measure of firm value. The interaction term of real earnings management and Tobin's Q is used to test firm value persistence. The results of the analysis disclose that out of three measures of real earnings management, abnormal reduction in discretionary spending only has a significant negative impact on the persistence of firm value. Moreover, the suspect firm analysis reveals that when the underlying motive of real earnings management is to meet zero earnings, both abnormal increases in operating cash flows and abnormal reduction in discretionary spending have a significant negative impact on firm value persistence.

Keywords: Real Earnings Management, Suspect Firm Effect, Firm Value, Opportunistic Earnings Management, Signalling Earnings Management

JEL Classification Code: G32, G34, M41, M400

1. Introduction

The purpose of the present study is to examine the relationship between real earnings management (henceforth, REM) and the value of the firm. Managers adopt REM

with an intention to inflate the current period earnings and which may not be sustainable in subsequent periods. Such inflated earnings will also have an impact on the value of the firm in the market. The nature of implications of REM depends on the motives behind adopting such REM. When the driving force for adopting REM is to meet the zero earnings or last year earnings, it will have negative implications on earnings quality and firm value which was supported by opportunistic earnings management theory (Bartov et al., 2002; Ewert & Wagenhofer, 2005; Graham et al., 2005; Roychowdhury, 2006; Bhojraj et al., 2009; Eldenburg et al., 2011; Li, 2019). The opportunistic earnings management makes the information content of the current earnings and firm value poor and makes them less persistent over a period of time.

On the other hand, when the REM is adopted to signal the private information about the future prospects of the firm, it will result in increased earnings persistence which was supported by the signaling theory of earnings management (Subramanyam, 1996; Bartov et al., 2002; Roychowdhury, 2006; Tan & Jamal, 2006; Koh et al., 2008; Gunny, 2010; Taylor & Xu, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018). The signaling theory of earnings management argues that managers have access to private information relating

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to future prospects of the firm and they signal it through REM activities. For example, increasing the investment in research and development activities may imply better business opportunities for the firms having a positive impact on the future earnings and firm value.

In the Indian context, studies like Dawar (2014) reiterated that investment decision-making in India is influenced by the reported earnings of the firms. The study also observed that the market value of the shares in India is determined based on the earnings and book value of shares. Hence, there is a relationship between earnings management and firm value. Inflating the earnings may result in positive market sentiments in the short run unless it is not detected by the market participants. It stresses the need for more research on the implications of earnings management in India, especially, real earnings management. Research on real earnings management has gained its importance in emerging markets, because of introducing stringent accounting standards by many of the countries providing lesser scope for selection of accounting policies discretionarily (Cohen et al., 2008; Ewert & Wagenhofer, 2005; Zang, 2012). The study by Rudra and Bhattacharjee (2012) proved that after the adaptation of IFRS in India, there was less scope for accrual-based earnings management by Indian firms. It motivates the managers to adopt real earnings management. In spite of it, little research has been done in India on the implications of real earnings management. The prior literature in India adopted the definitions of earnings management which were based on accruals (Dawar, 2014; Mulchandani et al., 2019; Potharla, Bhattacharjee, & Iyer, 2021). There are only a few studies in India which adopted real earnings management definitions like Das et al. (2017).

Against this backdrop, the present study tests the association between REM and firm value persistence by employing three alternative definitions of REM viz., REM through abnormal operating cash flows, REM through abnormal reduction in discretionary spending, and REM through abnormal increase in the level of production (Gunny, 2010; Roychowdhury, 2006). REM is estimated for each two-digit NIC classification for every year in the sample from 2011 to 2018.

The baseline regression results show that interaction terms of $REM_{it} * Q_{it}$ is having a significant negative impact on the value of the firm when REM denotes an abnormal reduction in discretionary spending. The suspect firm analysis reveals that REM reduces the persistence of firm value when it is adopted through the abnormal increase in operating cash flows and/or abnormal reduction in discretionary spending. Moreover, the negative implications of REM on firm value persistence are very strong when the motive to adopt REM is to meet the zero earnings target. The findings are in tune with the extant literature on opportunistic earnings management (Mizik & Jacobson, 2007; Eldenburg et al., 2011;

Cheng et al., 2016; Francis et al., 2016; Li, 2019). However, the findings are contradicting some other prior studies like the baseline regression results show that interaction terms are having a significant negative impact, Gunny (2010), Zhao et al. (2012), and Al-Shattarat et al. (2018).

The key finding of the present study is REM through the abnormal reduction in discretionary spending has more negative implications on firm value compared to the remaining two alternative ways of real earnings management. The results of the present study provide perceptive insights to the investors, stock analysts, and policy-makers in analyzing the implications of REM on firm value. The study contributes to the prior literature on the implication of real earnings management, against the backdrop of its growing importance in accounting research in the recent past in emerging markets.

2. Literature Review and Hypothesis Development

The prior literature is divided into two streams based on the motives underlying the real earnings management adopted by the firms' viz., opportunistic earnings management, and signaling earnings management.

2.1. Opportunistic Earnings Management

The driving forces of opportunistic earnings management may include meeting or beating earnings targets; drawing more compensation by the managers; inflating the securities prices in the market, deriving more consideration in mergers & acquisitions, etc., The prior literature documents two negative implications of opportunistic earnings management viz., it lessens the informativeness of current period earnings; and it makes the earnings less persistent. (Barton & Simko, 2002; Hirshleifer et al., 2004; Bhojraj & Libby, 2005; Ewert & Wagenhofer, 2005; Graham et al., 2005; Roychowdhury, 2006; Mizik & Jacobson, 2007; Bhojraj et al., 2009; Mizik, 2010; Eldenburg et al., 2011; Cheng et al., 2016; Francis et al., 2016; Li et al., 2019).

The studies like DeFond (2002) and Hirshleifer et al. (2004) evidenced that REM results has a significant negative impact on the future operating performance of the firm. It was proved even in the case of firms reporting a large value of operating assets on their balance sheet. Mizik (2010) proved that REM through cutting down R&D spending will have two-fold negative implications. It will affect not only the future financial performance but also the stock returns negatively. The study by Bhojraj et al. (2009) also evidenced that shares of the firms are discounted substantially by the market when the firms adopt REM. They also proved that adopting REM by the firms results in the destruction of the value of the stocks in

the future. The study by Francis et al. (2016) proved that upward earnings management will result in a subsequent crash of stock prices.

The studies like Graham et al. (2005), Bhojraj and Libby (2005), Ewert and Wagenhofer (2005), and Roychowdhury(2006) documented the myopic behavior of managers to meet/beat earnings forecasts. The survey made by Graham et al. (2005) revealed that 80 percent of respondents are likely to adopt REM even though, it results in forgoing the projects with positive net present value, when the underlying motive is to meet or beat the analysts' forecasts. The study by Eldenburg et al. (2011) found that when there is a nexus between managerial compensation and firm performance, managers are strongly motivated to adopt REM to showcase better performance of the firm. The relationship between REM and earnings persistence is studied by Li (2019) and found that abnormal reduction in discretionary spending results in reduced earnings persistence.

Dang et al. (2020) investigated the impact of earnings quality on the value of the firm. The study has measured earnings quality by employing three proxies viz., earnings management, earnings persistence. The study proved the positive impact of earnings quality on the value of the firm. The findings also disclose that variables like leverage, price-to-book ratio, growth of revenue have a negative impact on the value of the firm.

The following proposition stems from the discussion on literature relating to opportunistic earnings management.

Proposition-1: *Real earnings management is negatively correlated to firm value and also, it negatively affects firm value persistence.*

2.2. Signalling Earnings Management

The signaling theory of earnings management argues that private information relating to the future prospects of the firm is signaled by the managers through REM activities. If the underlying motive is to signal positive private information about the future prospects of the firm, it will have positive implications on the future earnings and future firm value. The prior literature has also supported the signaling motive of earnings management (Subramanyam, 1996; Bartov et al., 2002; Roychowdhury, 2006; Koh et al., 2008; Gunny, 2010; Taylor & Xu, 2010; Zhao et al., 2012; Al-Shattarat et al., 2018).

The study by Subramanyam(1996) found that REM is used by the managers to convey the information relating to the future profitability of the firm and so, there is a positive relationship between REM and future performance. Gunny(2010) proved that firms that adopt REM to meet or beat analysts' forecasts exhibited better financial

performance in the subsequent years compared to the firms which have not adopted REM to meet or beat the analysts' forecasts. Zhao et al. (2012) also supported that REM is used to signal positive future performance. The study also observed that REM is a costlier means to signal the future performance of the firm. So, managers are reluctant to use REM to signal future performance, when a takeover threat exists. Taylor and Xu (2010) also found that REM has not negatively influenced the future performance of the firms.

The recent study by Al-Shattarat et al. (2018) also evidenced that when the underlying motive of REM is to meet or beat the earnings benchmarks, adopting REM through manipulation of operating cash flows, discretionary expenditure, and production cost, will not result in negative performance in the subsequent years. The study, however, found that the firms, adopting REM other than for the motive of meeting earnings benchmarks, have shown negative performance in subsequent years.

Tran et al. (2020) examined the association of corporate governance and earnings management. The study found that where corporate governance is characterized by more foreign directors on the board and strong audit committees, it will result in lower earnings management. The study suggests that the quality of accounting information should be improved so that the economic integration of Vietnam with other markets can take place smoothly. Hernawati et al. (2021) tested the relationship between earnings management and firm value. The study has used path analysis to test the relationship. The results proved that income-increasing earnings management will result in an increase in the future value of the firm. The study also proved that social welfare and managerial remuneration augment the positive impact of income-increasing earnings management on the future value of the firm.

Based on the above discussion relating to signaling earnings management, the present study makes the following proposition.

Proposition-2: *The real earnings management is positively correlated to future firm value and, it positively affects the firm value persistence.*

3. Indian Context and Motivation of the Study

Indian market embraces four unique features compared to developed markets viz., more concentration of ownership, more growth opportunities to the firms, competition is less in the product market and capital market is less developed. Those unique features will have their impact on the alignment of interest of the stakeholders of the firm and, in turn, it influences the underlying motives for earnings management. The prior literature evidence that different styles of

management behavior give rise to varying expectations to the stakeholders and it also influences the level of earnings management across the countries. (Brown & Higgins, 2005; Francis et al., 2016; Han et al., 2010; Leuz et al., 2003). So, there is a need for more research in the Indian context on the motives of earnings management and its implications on firm performance.

3.1. Changing Landscapes of Financial Reporting in India

Rigorous accounting standards provide lesser scope for choosing the accounting policies discretionarily. In such a context, managers are not motivated to adopt accrual-based earnings management and consequently, they show interest in real earnings management activities as evidenced by the prior literature (Ewert & Wagenhofer, 2005; Cohen et al., 2012). Rudra and Bhattacharjee (2012) support that the adoption of IFRS by the firms in India resulted in less accrual-based earnings management. In such a context, managers have an advantage in adopting REM activities, because, such activities are done easily by changing the structure of business transactions and/or the level of business transactions. It can be camouflaged easily by the managers making them difficult to be detected by outsiders.

Many Indian firms which have a cross-border listing of their shares have already been reporting their financial statements as per IFRS or US GAAP. Besides, Converged Accounting Standards (termed as Ind. AS) are also introduced in India in a phased manner from 1st April 2016. Those standards are converged with IFRS which is a motive to achieve greater transparency, reliability, consistency, and comparability of the financial statements. This situation also motivates the managers to adopt real earnings management rather than accrual-based earnings management.

3.2. Literature Relating to Earnings Management in Indian Context

The prior Indian literature had concentrated mainly on the earnings management measures and the factors influencing the earning management (inter-alia, Sarkar et al., 2013; Ajay & Madhumathi, 2015; Chatterjee & Rakshit, 2020). Little research has been done on the implications of earnings management, especially, on how earnings management influences the quality of reported earnings. Prior literature concentrated mainly on how conservatism, audit quality, corporate pay-out policies, etc., influences earnings quality (Dawar, 2014; Lyimo, 2014; Pathak & Ranajee, 2020).

Lyimo (2014) found that conservatism does not influence the quality of reported earnings, but it influences the stock prices in the market. Houqe et al. (2018) evidenced that earnings quality is positively associated with audit quality and cost of capital and also evidenced that the group affiliated firms have a comparatively higher quality of earnings and lower cost of capital. Mulchandani et al. (2019) found that dividends have significant information content about future earnings. Dawar (2014) found that the lagged earnings, but not the lagged accruals, have a significant impact on current period earnings. It implies that investors in the Indian market give more importance to reported earnings, but not on the composition of earnings (i.e., accruals and cash flows).

The literature review in the Indian context reveals that there is little research on the association between earnings management and earnings persistence. Moreover, the prior literature in India was using the definition of accrual-based earnings management, proposed by Jones (1991) and Dechow et al. (1995) to measure earnings management. As against it, the present study applies the definition of real earnings management (Gunny, 2010; Roychowdhury, 2006). The present study measures real earnings management in three alternative ways which will strengthen the operational definition of the given construct and also provides robustness of the findings to varying activities of REM. Besides, suspect firm analysis, which is used in the present study, provides more robustness to the findings.

4. Methodology

4.1. Sample and Data Sources

The sample of the present study consists of all the listed non-financial companies from the year 2011 to 2018. The data relating to the required variables has been sourced from the CMIE Prowess database. The firm value has been measured with Tobin's Q . Real earnings management has been measured by employing three alternative definitions as proposed by the extant literature Brown et al., 2015; Kim et al., 2012; McGuire et al., 2012; Roychowdhury, 2006). The study considers only income-increasing values of the three alternative measures of earnings management. The extreme values in all the variables, which are having a weightage of one percent or less in the data distribution, have been removed from the analysis.

4.2. Measurement of Firm Value

The present study uses Tobin's Q (Tobin, 1969) as the measure of firm value. Tobin's Q is measured as the market

value of capital to the book value of assets. The market value of capital is the sum of the market capitalization of equity shares, preference shares, and debt. As the market value of preference shares and debt is difficult to get, the book value of preference shares and debt is only considered in the measurement of Tobin's Q . If Tobin's Q is greater than one, it implies overvaluation of firm and reverse is true when the Tobin's Q is less than one. The prior literature has used Tobin's Q as a measure of market performance of the firm (Demsetz & Lehn, 1985; Morck et al., Shleifer & Vishny, 1988; McConnell & Servaes, 1990; Khanna & Palepu, 2000; Sarkar & Sarkar, 2000; Jackling & Johl, 2009; Hussein & Venkatram, 2013). In the present study, Tobin's Q is computed as follows.

$$\text{Tobin's } Q = \frac{\text{MV} + \text{BV}_p + \text{STD} + \text{LTD}}{\text{TA}}$$

Where MV is the market value of equity, BV_p is the book value of Preferred Stock; STD is short term debt; LTD is long term debt and TA is total assets.

4.3. Measurement of Real Earnings Management

With reference to prior literature (Brown et al., 2015; Kim et al., 2012; McGuire et al., 2012; Roychowdhury, 2006), the present study applied three alternative definitions of real earnings management viz., abnormal operating cash flows, abnormal reduction in discretionary spending and over-production.

Abnormal Operating Cash Flows

When actual operating cash flows differ from the normal level of operating cash flows, sales manipulation is suspected, which is the main source for managing the operating cash flows. As per previous studies (Gunny, 2010; Roychowdhury, 2006), normal operating cash flows are estimated as linear functions sales and change in sales.

$$\begin{aligned} \frac{\text{CFO}_{it}}{\text{Assets}_{it-1}} &= \alpha_0 + \beta_1 \frac{1}{\text{Assets}_{it-1}} \\ &+ \beta_2 \frac{\text{Sales}_{it}}{\text{Assets}_{it-1}} \\ &+ \beta_3 \frac{\Delta \text{Sales}_{it}}{\text{Assets}_{it-1}} + \varepsilon_{it} \end{aligned} \quad (1)$$

In equation (1), CFO_{it} denotes operating cash flow; A_{it-1} denotes one year lagged total assets; Sales_{it} denotes net sales;

and ΔSales_{it} denotes changes in net sales. All the variables used in the model are scaled by one-year lagged assets. Abnormal operating cash flows are derived as the difference between actual and estimated operating cash flows and multiplying the difference with the negative one (-1). After the multiplication of abnormal operating cash flows with minus one, the positive values of abnormal cash flows represent income-increasing real earnings management (Badertscher, 2011).

Over-production

An increase in production leads to a decrease in the Cost of Goods Sold (COGS) due to the allocation of fixed production overheads to an increased number of units of production. A decrease in COGS leads to an increase in earnings. In this way, over-production, ultimately, results in inflated earnings. With reference to prior literature (Dechow et al., 1995; Roychowdhury, 2006), the normal level of production cost is estimated as the linear function of sales, change in sales in the current year, and previous year.

$$\begin{aligned} \frac{\text{PROD}_{it}}{\text{ASSETS}_{it-1}} &= \alpha_0 + \beta_1 \frac{1}{\text{ASSETS}_{it-1}} \\ &+ \beta_2 \frac{\text{SALES}_{it}}{\text{ASSETS}_{it-1}} \\ &+ \beta_3 \frac{\Delta \text{SALES}_{it}}{\text{ASSETS}_{it-1}} \\ &+ \beta_4 \frac{\Delta \text{SALES}_{it-1}}{\text{ASSETS}_{it-1}} + \varepsilon_{it} \end{aligned} \quad (2)$$

In equation (2), PROD_{it} denotes the production cost which is the sum of the cost of goods sold and change in inventory.

Reducing Discretionary Expenditure

Firms also reduce discretionary spending more than the normal level to inflate earnings (Roychowdhury, 2006). To estimate the abnormal reduction of discretionary spending, the normal level of discretionary spending is predicted as the linear function of sales and change in sales. The difference between actual discretionary spending and normal discretionary spending is treated as abnormal discretionary spending and it is multiplied by minus one (-1) (Zang, 2012). After the multiplication of abnormal discretionary spending with minus one, the positive values of abnormal discretionary spending represent income-increasing earnings management (Zang, 2012).

$$\frac{DISX_{it}}{ASSETS_{it-1}} = \alpha_0 + \beta_1 \frac{1}{ASSETS_{it-1}} + \beta_2 \frac{SALES_{it-1}}{ASSETS_{it-1}} + \beta_3 \frac{\Delta SALES_{it-1}}{ASSETS_{it-1}} + \varepsilon_{it} \quad (3)$$

In equation (3), $DISX_{it}$ denotes discretionary spending. In equations (1–3), all the variables are scaled by one year lagged total assets. The equations (1–3) are predicted for each year and each 2-digit NIC industry classification from 2011 to 2018. If any industry year has less than 15 observations, such industry years are excluded.

4.4. Empirical Model Used to Test the Relationship Between REM and Firm Value

To test the informativeness of current period firm value in predicting the future firm value and also to test the impact of real earnings management on the persistence of firm value, the present study developed three regression equations. Each equation represents one alternative method of real earnings management.

$$Q_{it+1} = \alpha_0 + \beta_1 Q_{it} + \beta_2 REM_CFO_{it} + \beta_3 REM_CFO_{it} * Q_{it} + \gamma_1 SIZE_{it} + \gamma_2 PBV_{it} + \gamma_3 Growth_{it} + \gamma_4 IA_dummy_{it} + \varepsilon_{it} \quad (4)$$

$$Q_{it+1} = \alpha_0 + \beta_1 Q_{it} + \beta_2 REM_PROD_{it} + \beta_3 REM_PROD_{it} * Q_{it} + \gamma_1 SIZE_{it} + \gamma_2 PBV_{it} + \gamma_3 Growth_{it} + \gamma_4 IA_dummy_{it} + \varepsilon_{it} \quad (5)$$

$$Q_{it+1} = \alpha_0 + \beta_1 Q_{it} + \beta_2 REM_DISX_{it} + \beta_3 REM_DISX_{it} * Q_{it} + \gamma_1 SIZE_{it} + \gamma_2 PBV_{it} + \gamma_3 Growth_{it} + \gamma_4 IA_dummy_{it} + \varepsilon_{it} \quad (6)$$

In equations (4–6), Q_{it+1} denotes firm value; REM is measured by three alternative methods. Equation (4) represents abnormal operating cash flows i.e., REM_CFO_{it} ;

equation (5) represents abnormal production cost i.e., REM_PROD_{it} ; equation (6) represents abnormal discretionary expenditure i.e., REM_DISX_{it} . Only upward real earnings management is considered for the analysis. In other words, all the three alternative REM measures greater than zero are only considered. Equations (4–6) include the interaction term of REM and Tobin's Q. The sign of interaction term shows how the REM impacts firm value persistence. If β_3 is negative, it shows that REM reduces firm value persistence and vice versa. $SIZE_{it}$ denotes log value of market capitalization of the firm; PBV_{it} represents price-to-book value; $Growth_{it}$ denotes growth in total assets which is measured as current year assets divided by previous year assets. IA_dummy_{it} is the dummy variable which takes value '1', if the company reports intangible assets on its balance sheet and otherwise 'zero'. Equations (4–6) are estimated by employing panel data regression by introducing industry fixed effects and year-fixed effects which factors in unobservable industry and time series effect.

5. Results

5.1. Univariate Analysis of the Variables

The present study uses three alternative measures of REM, employing each measure in one regression model. The sample size for the three regression models varies due to the different number of firm years available for the three models. Hence, descriptive statistics and correlation has been done separately for the sample used in each regression model.

Tables 1(A) to 1(C) provides the descriptive statistics. The average of income-increasing abnormal operating cash flows (i.e., REM_CFO_{it}) is 0.090 and the median is 0.052 with a standard deviation of 0.144. The income-increasing abnormal discretionary expenditure (i.e., REM_DISX_{it}) is having a mean value of 0.014, a median of 0.011, and a standard deviation of 0.012 showing the marginal difference between the mean and median values. It also indicates a very low level of Skewness. The incoming increasing abnormal production (i.e., REM_PROD_{it}) is 0.078 with a median value of 0.060 and standard deviation of 0.068. It also indicates a very lower level of Skewness.

The median value Q_{it} is around 0.70 in the three regression models. However, some companies have a huge variation in their Q_{it} . For some companies, their market value of capital is as high as seven times to book value of assets. The skewness of the Q_{it} is positive which indicates that a large number of companies have a Q_{it} value below the mean of the sample.

The average $SIZE_{it}$ of the sample firms is between 6.50 and 6.80 in the three regression models. There is not much difference between mean and median values of size. The average PBV_{it} value is between 1.40 and 1.50. In all three regression models, the median value is less than the mean

Table 1(A): Descriptive Statistics (For the Sample Used in Regression Model-1)

Statistic	Q_{it+1}	Q_{it}	REM_CFO _{it}	REM_CFO _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Mean	1.002	0.908	0.090	0.083	6.805	1.527	1.068
Median	0.766	0.717	0.052	0.037	6.583	0.890	1.022
Maximum	11.175	6.982	1.936	2.655	13.389	12.930	2.390
Minimum	0.018	0.007	0.000	0.000	2.603	0.060	0.415
Std. Dev.	0.847	0.680	0.144	0.162	2.114	1.794	0.188
Skewness	3.925	3.097	6.196	6.304	0.528	2.731	1.796
Kurtosis	28.918	17.409	57.464	60.390	2.849	12.314	10.787
Observations	4589	4589	4589	4589	4589	4589	4589

Table 1(B): Descriptive Statistics (For the Sample Used in Regression Model-2)

Statistic	Q_{it+1}	Q_{it}	REM_DISX _{it}	REM_DISX _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Mean	1.004	0.907	0.014	0.013	6.803	1.497	1.059
Median	0.740	0.702	0.011	0.008	6.591	0.860	1.015
Maximum	24.683	7.910	0.078	0.295	13.389	12.920	2.386
Minimum	0.007	0.007	0.000	0.000	2.603	0.060	0.410
Std. Dev.	0.973	0.737	0.012	0.017	2.124	1.766	0.179
Skewness	6.185	3.383	1.631	4.434	0.490	2.710	1.599
Kurtosis	85.699	19.461	6.328	36.612	2.784	11.998	10.428
Observations	6904	6904	6904	6904	6904	6904	6904

Table 1(C): Descriptive Statistics (For the Sample Used in Regression Model-3)

Statistic	Q_{it+1}	Q_{it}	REM_PROD _{it}	REM_PROD _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Mean	0.933	0.835	0.078	0.065	6.580	1.434	1.054
Median	0.722	0.680	0.060	0.040	6.392	0.780	1.007
Maximum	24.683	6.982	0.456	1.405	13.389	12.920	2.386
Minimum	0.008	0.008	0.001	0.000	2.601	0.060	0.410
Std. Dev.	0.875	0.618	0.068	0.085	2.033	1.815	0.183
Skewness	8.024	3.395	1.699	4.811	0.557	2.936	1.665
Kurtosis	149.513	20.180	6.865	43.745	3.028	13.169	10.432
Observations	4534	4534	4534	4534	4534	4534	4534

value indicating that a large number of firms are having the PBV lower than the mean value. The average Growth_{it} is between 1.05 and 1.07. In all three regression models, there is a marginal difference between mean and median values of Growth_{it}.

Table 2(A) to 2(C) provides the results of correlation analysis. The REM_CFO_{it} and REM_PROD_{it} have weak negative correlation and REM_DISX_{it} has a weak positive

correlation with Q_{it+1} . However, the correlation of the interaction terms i.e., REM_CFO_{it} * Q_{it} , REM_DISX_{it} * Q_{it} and REM_PROD_{it} * Q_{it} with Q_{it+1} is positive and moderate.

5.2. Baseline Regression

Table 3 presents the results of panel data regression analysis done with the models presented in equations

Table 2(A): Correlation Analysis (For the Sample Used in Regression Model-1)

Correlation	Q_{it+1}	Q_{it}	REM_CFO _{it}	REM_CFO _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Q_{it+1}	1						
Q_{it}	0.791	1					
REM_CFO _{it}	-0.001	0.016	1				
REM_CFO _{it} * Q_{it}	0.302	0.401	0.764	1			
SIZE _{it}	0.321	0.397	-0.088	0.060	1		
PBV _{it}	0.604	0.735	0.021	0.298	0.330	1	
Growth _{it}	-0.002	0.020	0.163	0.152	0.088	0.025	1

Table 2(B): Correlation Analysis (For the Sample Used in Regression Model-2)

Correlation	Q_{it+1}	Q_{it}	REM_DISX _{it}	REM_DISX _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Q_{it+1}	1						
Q_{it}	0.760	1					
REM_DISX _{it}	0.008	0.003	1				
REM_DISX _{it} * Q_{it}	0.449	0.605	0.628	1			
SIZE _{it}	0.321	0.413	-0.125	0.181	1		
PBV _{it}	0.577	0.733	0.036	0.475	0.348	1	
Growth _{it}	0.001	0.014	0.139	0.100	0.114	0.024	1

Table 2(C): Correlation Analysis (For the Sample Used in Regression Model-3)

Correlation	Q_{it+1}	Q_{it}	REM_PROD _{it}	REM_PROD _{it} * Q_{it}	SIZE _{it}	PBV _{it}	Growth _{it}
Q_{it+1}	1						
Q_{it}	0.747	1					
REM_PROD _{it}	-0.012	-0.011	1				
REM_PROD _{it} * Q_{it}	0.442	0.598	0.634	1			
SIZE _{it}	0.274	0.381	-0.134	0.117	1		
PBV _{it}	0.495	0.651	0.005	0.382	0.311	1	
Growth _{it}	-0.051	-0.027	0.166	0.065	0.103	-0.002	1

(4–6) by applying industry and year fixed effects. Upward earnings management which is represented by positive values of abnormal operating cash flows (i.e.), abnormal discretionary spending (i.e., REM_DISX_{it}), and abnormal level of production cost (i.e., REM_PROD_{it}) are considered in the regression analysis. In all the three regression models, the dependent variable is Q_{it+1} which represents the one-year leading value of Tobin's Q . Independent variables includes Q_{it} which refers to current year Tobin's Q ; SIZE_{it} denotes log value of market capitalization of the firm; PBV_{it} denotes price-to-book value; Growth_{it} refers to growth in total assets,

measured by dividing current year assets with previous year assets. IA_dummy_{it} is the dummy variable which takes value '1' if the company reports intangible assets on its balance sheet in year 't' and otherwise 'zero'. *** indicates 1% level of significance; ** indicates 5% level of significance; * indicates 10% level of significance.

Baseline regression results (Table 3) reveal a significant positive impact Q_{it} on Q_{it+1} all three models. It implies positive autocorrelation in the values of Tobin's Q . The REM_{it} has a positive impact while the interaction term REM_{it} * Q_{it} has a negative impact on Q_{it+1} in all the three

Table 3: Relationship between Real Earnings Management and Firm Value [Dependent Variable: One Year Leading Tobin's Q i.e., Q_{it+1}]

Variable	Equation-4	Equation-5	Equation-6
	REM_CFO _{it}	REM_DISX _{it}	REM_PROD _{it}
Q_{it}	0.946***	0.994***	1.060***
REM _{it}	0.152	2.738***	0.219
REM _{it} * Q_{it}	-0.107	-3.171***	-0.199
SIZE _{it}	0.000	0.002	-0.007
PBV _{it}	0.022***	0.023***	0.005
Growth _{it}	-0.038	-0.013	-0.083*
IA_dummy _{it}	0.031*	0.009	0.009
Constant	0.113*	0.030	0.296***
Observations	4,589	6,904	4,534
R-squared	0.647	0.592	0.573
Adjusted Squared	0.643	0.589	0.569
F-statistic	169.728	202.776	134.029
Year-fixed effects	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes

regression models. However, the impact of these two variables is significant only when REM denotes REM_DISX_{it}. The study by Li (2019) had also evidenced the positive impact of REM when it was measured through abnormal discretionary expenditure. The negative impact of the interaction REM_{it} * Q_{it} implies that the future value of the firm will become less persistent when the managers adopt REM. The less persistent market value of the firm may also destroy future share prices. More specifically, when a firm reduces its discretionary spending on research and development, advertisement, etc., it will have its impact on the future expectations in the market leading to deterioration in the value of Tobin's Q . The prior literature also supports the negative impact of REM on the firm performance (Mizik & Jacobson, 2007; Eldenburg et al., 2011; Cheng et al., 2016; Francis et al., 2019).

The SIZE_{it} of the firm has no significant impact on Q_{it+1} . On the other hand, PBV_{it} has a significant positive impact on Q_{it+1} when REM denotes REM_CFO_{it}, REM_DISX_{it}, but not REM_PROD_{it}. The positive impact of PBV_{it} on Q_{it+1} is expected, because, increase in PBV leads to the increased market performance of the firm as reflected by Tobin's Q . Growth_{it} has a significant negative impact on Q_{it+1} only on REM denotes REM_PROD_{it} while IA_dummy_{it} has its significant impact only when REM denotes REM_CFO_{it}. The firms which experience a higher growth rate will have

more book value of assets and so, such firms will have lower Tobin's Q . The positive impact IA_dummy_{it} implies that firms that report intangible assets like goodwill, patents, copyrights, etc., will have a positive impact on the market value of their shares.

The R-squared and adjusted R-squared values reported by three regression models are between 0.57 and 0.65. In the extant literature like Li (2019) and Al-Shattarat et al. (2018); in the Indian context, the studies like Dawar (2014) reported R-squared and adjusted R-squared values above 0.70.

5.3. Suspect Firm Analysis

The extant literature has documented that motivation towards earnings management is more when managers are under the pressure of meeting zero earnings (Beaver et al., 2003; Dechow et al., 2003; Li, 2019). When the underlying motivation for managers to use REM is to achieve zero earnings, the effect of REM on earnings persistence and firm value persistence is stronger. To test the robustness of the baseline regression results to the context of adopting REM to meet the zero earnings, the present study generates the dummy variable of suspect firms which assigns value '1' if the firm belongs to suspect firm group and otherwise, zero. The interaction term of the suspect firm dummy with REM and Tobin's Q is introduced into the regression model

as shown in equation 7 to equation 9. In the presence of managers who have the goal of attaining zero earnings, the interaction term factors are introduced in the incremental effect of REM on firm value.

The present study selects those firms, which have reported their ROA as greater than zero but not more than 2 percent, as suspect firms. The sample of such firms consists of 4,343 firm years which accounts for 22 percent of the total sample of the study and 31 percent of the total firms which reported positive ROA. The threshold level for identifying the suspect firm is selected as 2 percent of ROA¹. Al-Shattarat et al. (2018) had used a threshold level of one percent earnings to select suspect firms. The equation 7 to equation 9 represents the regression models used in the present study to test the impact of suspect firms on the relationship between real earnings management and firm value.

$$\begin{aligned}
 Q_{it+1} = & \alpha_0 + \beta_1 Q_{it} + \beta_2 \text{REM_CFO}_{it} \\
 & + \beta_3 \text{REM_CFO}_{it} * Q_{it} \\
 & + \beta_4 \text{SUSPECT}_{it} * \text{REM_CFO}_{it} * Q_{it} \\
 & + \gamma_1 \text{SIZE}_{it} + \gamma_2 \text{PBV}_{it} \\
 & + \gamma_3 \text{Growth}_{it} + \gamma_4 \text{IA_dummy}_{it} + \varepsilon_{it}
 \end{aligned} \quad (7)$$

$$\begin{aligned}
 Q_{it+1} = & \alpha_0 + \beta_1 Q_{it} + \beta_2 \text{REM_DISX}_{it} \\
 & + \beta_3 \text{REM_DISX}_{it} * Q_{it} \\
 & + \beta_4 \text{SUSPECT}_{it} * \text{REM_DISX}_{it} * Q_{it} \\
 & + \gamma_1 \text{SIZE}_{it} + \gamma_2 \text{PBV}_{it} + \gamma_3 \text{Growth}_{it} \\
 & + \gamma_4 \text{IA_dummy}_{it} + \varepsilon_{it}
 \end{aligned} \quad (8)$$

$$\begin{aligned}
 Q_{it+1} = & \alpha_0 + \beta_1 Q_{it} + \beta_2 \text{REM_PROD}_{it} \\
 & + \beta_3 \text{REM_PROD}_{it} * Q_{it} \\
 & + \beta_4 \text{SUSPECT}_{it} * \text{REM_PROD}_{it} * Q_{it} \\
 & + \gamma_1 \text{SIZE}_{it} + \gamma_2 \text{PBV}_{it} \\
 & + \gamma_3 \text{Growth}_{it} + \gamma_4 \text{IA_dummy}_{it} + \varepsilon_{it}
 \end{aligned} \quad (9)$$

In equation 7 to equation 9, SUSPECT_{it} refers to dummy variable which takes value '1', if the ROA of the firm is greater than zero, but not more than two percent, and otherwise it is '0'. All the remaining variables are the same as presented in equations 4 to equation 6.

Table 4 presents the results of panel data regression analysis done with the models presented in equations (7–9) by applying industry and year fixed effects. Upward earnings

Table 4: Testing the Robustness of the Baseline Regression to the Suspect Firm Effect
[Dependent Variable: One Year Leading Tobin's Q i.e., Q_{it+1}]

Variables	Equation-7	Equation-8	Equation-9
	REM_CFO _{it}	REM_DISX _{it}	REM_PROD _{it}
Q _{it}	0.936***	0.996***	1.062***
REM _{it}	0.183***	3.314***	0.232
REM _{it} * Q _{it}	-0.071	-3.415***	-0.194
SUSPECT _{it} * REM _{it} * Q _{it}	-0.420***	-2.580***	-0.113
SIZE _{it}	0.002	0.003	-0.007
PBV _{it}	0.023***	0.024***	0.005
Growth _{it}	-0.032	-0.018	-0.082
IA_dummy _{it}	0.027	0.005	0.008
Constant	0.107*	0.030	0.295***
Observations	4,582	6,899	4,534
R-squared	0.647	0.591	0.573
Adjusted Squared	0.643	0.588	0.569
F-statistic	166.141	198.031	131.100
Year-fixed effects	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes

management is represented by positive values of abnormal operating cash flows (i.e.), abnormal discretionary spending (i.e., REM_DISX_{it}) and abnormal level of production cost (i.e., REM_PROD_{it}). In all the three regression models, the dependent variable is Q_{it+1} which represents one-year leading values of Tobin's Q . Independent variables includes Q_{it} which refers to current year Tobin's Q ; $SUSPECT_{it}$ refers to dummy variable which takes value '1' if the ROA reported by the firm is greater than zero, but not more than two percent, and otherwise zero. $SIZE_{it}$ denotes log value of market capitalization of the firm; PBV_{it} denotes price-to-book value; $Growth_{it}$ refers to growth in total assets, measured by dividing current year assets with previous year assets. IA_dummy_{it} is the dummy variable which takes value '1' if the company reports intangible assets on its balance sheet and otherwise 'zero'. *** indicates 1% level of significance; ** indicates 5% level of significance; * indicates 10% level of significance.

As shown in Table 4, the impact of Q_{it} and REM_{it} on Q_{it+1} is qualitatively similar compared to that arrived in a baseline regression model. The interaction term $REM_{it} * Q_{it}$ is having a negative impact on Q_{it+1} all three models. However, the impact is significant only when REM is denoted by REM_DISX_{it} . The interaction term $SUSPECT_{it} * REM_{it} * Q_{it}$ is negative in all three models. But, it is significant only when REM denotes REM_CFO_{it} and REM_DISX_{it} . The interaction term $SUSPECT_{it} * REM_{it} * Q_{it}$ captures the incremental effect of REM and firm value in the presence of having the target of meeting zero earnings. The negative association of the interaction term with future firm value indicates that the firms which engage in REM to meet the zero earnings through the abnormal reduction in operating cash flows or/ and discretionary expenses will experience diminishing firm value in the subsequent years compared to other firms. Abnormal reduction in discretionary spending, especially, on research and development will result in deterioration in the competitive advantage of the firm, because, firms without innovation cannot create a monopolistic advantage in the market.

When the persistence of the firm value decreases, the ability to predict the future value of the firm will be diminished. So, the stocks of such firms will be less attractive to the stock analysts and investors. Moreover, manipulating real activities is also detrimental to the wealth maximization objective of the firm. It implies poor alignment of interest of the shareholders with the managers of the firm. The results are in line with prior literature (Mizik & Jacobson, 2007; Eldenburg et al., 2011; Cheng et al., 2016; Francis et al., 2016). The recent study by Li(2019) has also documented the negative impact of REM on firm performance. However, the findings are contradicting some other prior studies like Gunny (2010), Zhao et al. (2012), and Al-Shattarat et al. (2018).

The impact of controlling variables is qualitatively similar compared to the baseline model. The R -squared and adjusted R -squared values are also in a similar range compared to the baseline model.

6. Conclusion and Policy Implications

The present study aims to test the implications of real earnings management on the future value of the firm and the informativeness of the present market value of the firm in predicting future value. The review of prior literature in the Indian context reveals that there are only a few studies that examine the quality of earnings reported by Indian firms. In India, there is no study, examining the impact of real earnings management, which is driven by the motive to meet zero earnings by the managers, on the future value of the firm. To fill the research gap, the present study is taken up. The present study draws the sample of Indian non-financial firms from the year 2011 to 2018 which have adopted income-increasing real earnings management through an abnormal increase in operating cash flows, abnormal increase in the level of production, and abnormal reduction in discretionary spending. In the analysis of the impact of REM, the industry-specific and time-series specific characteristics are controlled by introducing industry- and year-fixed effects into the regression model.*

The findings of the study reveal that REM reduces the future value of the firm and also its persistence. The negative impact of REM on the persistence of firm value is stronger when the REM is adopted with an intention to meet the zero earnings. The negative impact of REM is more when it is adopted by an abnormal reduction in discretionary spending. It may be attributable to the fact that reduction in spending on research and development will lessen the chances of introducing innovative products in the market and thereby, deteriorates the monopolistic power of the firms in the market. Besides, the firms with more volatility in their value are perceived to be riskier and less attractive to the investors, because, predicting the future value of such firms becomes a difficult task.

Since real earnings management has a negative effect on the persistence of the future value of the firm, the stock analysts and investors should pay special attention to the abnormal reduction in the discretionary spending of the firm. Though it will inflate the current period earnings and value of the firm in the short run, it will deteriorate the value of the firm in the long run. Besides, providing more information by the companies on their discretionary spending will be helpful to the market participants in assessing the earnings management activities more effectively. The present study contributes to the existing literature on the implications of real earnings management in emerging markets like India.

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Endnote

¹The untabulated results show that the impact of REM on Tobin's Q is not proved when the threshold level in selection of suspect firm is 1 percent of ROA or less.

Appendix–A: Variables used in the Study and their Measurement

Variables	Description	Measurement
Q_{it+1}	Future value of firm	One year leading Tobin's Q .
Q_{it}	Current year value of firm	Current year Tobin's Q . It is measured as the ratio of market value of capital to book value of assets.
CFO_{it}	Operating Cash flows	Net cash flows from operating activities.
$PROD_{it}$	Production Cost	Production cost which is the sum of cost of goods sold and change in inventory.
$DISX_{it}$	Discretionary spending	It is the sum of advertising and R& D expenditure.
REM_CFO_{it}	Abnormal operating cash flows	It denotes the difference between actual and predicted values of operating cash flows as per the equation (1) and multiplying the values with minus one(-1).
REM_PROD_{it}	Abnormal Production Cost	It denotes the difference between actual and predicted values of Production Cost by using the equation (2). Production cost is the sum of cost of goods sold (COGS) and change in inventory.
REM_DISX_{it}	Abnormal Discretionary Expenditure	It denotes the difference between actual and predicted values of Discretionary Expenditure by using the equation (3) and multiplying the values with minus one (-1).
$SIZE_{it}$	Size of the firm	Measured as log value of market capitalization of the firm.
$ASSETS_{it}$	Total Assets	Total Assets.
$SALES_{it}$	Net Sales	It represents Gross Sales minus sales returns.
$\Delta SALES_{it}$	Change in sales	Current year net sales minus preceding year net sales.
PBV_{it}	Price-to-Book value	It is computed by dividing market price of the share with book value per share.
$Growth_{it}$	Growth Rate	It is computed by dividing current year assets with preceding year assets.
IA_dummy_{it}	Intangible Assets dummy Variable	The dummy variable which takes value '1' if the company reports intangible assets on its balance sheet in the current year and otherwise 'zero'.
$SUSPECT_{it}$	Suspect firm	Dummy Variable which takes value '1' if the ROA reported by the firm in the current year is greater than zero, but not more than two percent and otherwise zero.