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Real earnings management and stock returns: moderating role of cross-sectional effects

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Abstract

Purpose – The study aims at investigating the impact of real earnings management (REM) on the cross-sectional stock return after considering the moderating role of market effect, size effect, value effect and momentum effect.

Design/methodology/approach – The study uses weekly and monthly data of 3,085 Bombay Stock Exchange listed stocks spanning over twenty years, from January 2000 to December 2019. REM is measured through metrics developed by Roychowdhury (2006), namely, abnormal levels of operating cash flows, production costs and discretionary expenditure. The study employs univariate and bivariate portfolio-level analysis.

Findings – The findings deduced from the empirical results demonstrate that investors perceive downward REM as an element of risk; hence, they discount the stock prices at a higher rate. On the contrary, results show that investors positively perceive upward REM; hence, they hold the stocks even at a lower rate of return. This anomaly is found to be robust for all kinds of considered moderations.

Practical implications – The findings have important managerial implications as investors are found to assign different weights to different forms of REM, depending upon the perception regarding the magnitude of risk involved in different forms. Managers can accommodate this information during their short- and long-term corporate planning.

Originality/value – First, the study is among the earlier attempts to examine the association between REM and stock returns by considering the moderating role of cross-sectional effects. Second, the study considers the direction and endogenous nature of REM while investigating the issue.

Keywords Real earnings management, Stock returns, Market efficiency, Indian stock market, Upward real earnings management, Downward real earnings management

Paper type Research paper

1. Introduction

Earnings management is one of the contemporary issues in accounting research. It refers to a practice under which managers manipulate the earnings to mislead some stakeholders toward the firm's underlying economic performance or fulfill their contractual obligations that depend upon reported earnings (Healy and Wahlen, 1999). Typically, under earnings management, firms are found to be engaged in misusing the discretions allowed under accounting rules (Kothari *et al.*, 2005). Firms engage in reporting inflated (deflated) earnings by making less (more) provisions for doubtful debts, or early (deferred) recognition of the revenue. It is referred to as accrual earnings management. However, firms are found to be shifted from accrual to real earnings management (REM) with the advent of increased scrutiny from auditors (Cohen *et al.*, 2008). REM refers to the deviation from the normal course

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of business for managing earnings. Managers increase (decrease) earnings either by increasing (decreasing) sales, decreasing (increasing) cost of goods sold or decreasing (increasing) non-operating expenses (Roychowdhury, 2006).

One of the incentives behind earnings management is to meet or beat analysts' earnings forecasts (Kasznik and McNichols, 2002). Firms meeting analyst's forecasts enjoy higher market valuation which, in turn, increases stock market return. Hence, earnings management and stock return are found to be closely associated. This association is termed "Accrual anomaly" (Ball *et al.*, 2016; Clinch *et al.*, 2012; Xie, 2001), which claims that firms with high discretionary accruals earn abnormally low future returns than firms with low discretionary accruals.

Numerous studies (for instance, Huang and Ho, 2020; Dayanandan and Sra, 2018; Jiang and Lu, 2017; Peng *et al.*, 2016; Wu *et al.*, 2012; Li, 2010) have examined the association between earnings management and stock returns. However, these studies ignore the direction and endogenous nature of earnings management while analyzing the relationship. By direction, we mean the form of earnings management. For instance, it is more likely that investors view downward and upward earnings management differently. Investors are expected to assign different weights to these forms of earnings management, depending on the magnitude of risk involved. By endogenous nature, we mean the influence of cross-sectional effects prevalent in the equity market. The association between earnings management and stock return is expected to be influenced by the systematic risk associated with the stock, size of the stock, nature of the stock (value and growth stocks) and the historical pattern of stock returns. These impacts are referred to as market effect, size effect, value effect and momentum effect, respectively. To the best of our knowledge, there has been no study to date that considers the direction of earnings management and jointly examined the moderating role of these cross-sectional effects on the association between earnings management and stock returns.

Moreover, most of the conducted studies belong to developed nations (for example, Huang and Ho, 2020; Jiang and Lu, 2017; Wu *et al.*, 2012; Li, 2010), and very few have addressed these issues in the emerging market context (Dayanandan and Sra, 2018). In the absence of adequate participation from emerging markets, generalizing the existing results to the entire research field does not seem to serve the purpose. Hence, we focus on India's emerging market, characterized by weaker corporate governance mechanisms, lax legal enforcement and lower investor protection regimes (Narayanaswamy *et al.*, 2012). Besides, Indian firms are found to be engaged in earnings management (Kapoor and Goel, 2017).

Under this backdrop, the study has twofold objectives: first, to investigate the impact of upward and downward REM in the cross-sections of stock return; second, to exploit the endogeneity of REM by considering the moderating role of market, size, value and momentum effect prevalent in the Indian equity market. The study uses a balanced sample of 3,085 Bombay Stock Exchange (BSE) listed stocks spanning over 20 years, from January 2000 to December 2019, to investigate these issues.

Our results exhibit that stocks having upward REM experience lower excess returns than stocks with downward REM. It implies that investors perceive downward earnings management as an element of risk, and hence they discount it at a higher rate; on the contrary, investors perceive upward earnings management as less risky, and hence they are found to hold the stocks even at a lower rate of return. Further, our results exhibit that firms with higher beta, large firms, overvalued firms and firms with higher momentum quantiles are more likely to be engaged in upward earnings management. The relationship between REM and stock return is found to be held consistent for all the considered moderation effects.

Our research contributes to the literature in both theoretical and practical spheres. First, our study enriches the earnings management literature by highlighting the differential implications for downward and upward earnings management. This is among the earlier

attempts that considered both forms of earnings management while examining the association between earnings management and stock return. Second, the study provides a comprehensive view of the association after controlling for the systematic risk and other well-known cross-sectional effects in the Indian equity market. The study jointly examines the moderating impact of different cross-sectional effects by taking the uniform sample of BSE listed firms over the same period. Third, the study has practical guidance to investors for fetching better returns. It suggests suitable investment strategies, where investors can take different long and short positions by examining the direction and magnitude of earning management. Fourth, the study demonstrates the influence of the equity market effects, particularly in the emerging nations where a tremendous growth in investment has been observed in the last decade.

The rest of the study proceeds as follows. Section 2 discusses prior studies and develops hypotheses. Section 3 describes data collection and research design. Section 4 discusses the empirical results. Section 5 summarizes the study with the conclusion and practical implications of our findings.

2. Prior literature and hypotheses development

Stock returns are the returns that investors generate out of the stock market's buying and selling activities. Therefore, one can understand these returns as the product of the price discovery mechanism. The price discovery process could be affected by several factors. For instance, the stock returns are affected by the earnings management practices of the firms. Examining the relationship between accounting earnings and stock returns has been a subject of interest for researchers internationally for many years. Ball and Brown (1968) were the first who documented the association between accounting earnings and stock return. Since then, many studies have been conducted to explore the field.

Firms engage in earnings management to meet the analyst's earnings forecasts (Kasznik and McNichols, 2002). It assists firms to positively influence the perception of the market participants toward the firm. Although numerous studies are available on the association between earnings management and stock return, however, the findings are mixed and inconclusive. One stream of research documents the positive impact of earnings management on stock return (for example, Sayari *et al.*, 2013; Fazeli and Rasouli, 2011). Another stream documents a negative association between earnings management and stock return (Nuryaman, 2013). Three theories explain the rationale behind these mixed shreds of pieces of evidence. These theories are efficient market hypotheses (EMHs), signaling theory and income smoothing theory.

2.1 Efficient market hypotheses

EMH states that financial markets are efficient and current stock prices reflect all the available information. There are three types of market efficiency, namely, weak form, semi strong, and strong form (Fama, 1970). The weak form states that investors cannot outperform the market by using the strategy based on financial algorithms because the current prices reveal all the information of firms that carry the potential to influence the prices. The semi-strong form also asserts that investors cannot earn excess returns because all the public information is disclosed by the stock prices. In the third form, the strong form states that current stock prices reflect even all that information that is not publicly available. Therefore, based on EMH, we can say that investors cannot earn excess returns by making use of trading strategies or algorithms.

2.2 Signaling theory

Managers, being the insiders and closer monitors of the firm's activities, have more information than shareholders. It gives rise to information asymmetry. This asymmetry in

the information provides managers an opportunity to manipulate accounting numbers for their self-interest. Managers engage in earnings management to avoid any adverse repercussions of information asymmetry. They try to signal their capabilities and hidden attributes by reporting firms' favorable operating and financial performance. Managers do so to attain a favorable market reaction in the form of a higher share price, which, in turn, positively influences the stock market return.

2.3 Income smoothing theory

Income smoothing is a special form of earnings management under which managers manipulate earnings to make earnings look less variable over time. Firms are incentivized to report smooth earnings to have higher market valuation (Goel and Thakor, 2003). Investors are found to assign higher weights to firms reporting consistent earnings. Hence, managers deflate (inflate) earnings by pushing (bringing) current (future) earnings to future (current) earnings with an intent to report a stable stream of earnings. It helps them to attain higher market valuation and higher stock returns.

Therefore, based on the above discussion of theories, we can say that EMH concluded no significant relation between earnings management and stock return, signaling theory argued a positive relationship, whereas income smoothing showed a relevant relationship between earnings management and stock returns. Accordingly, we develop a non-directional hypothesis to test the association between earnings management and stock returns. Our first hypothesis is:

H1. There is no association between the level of real earnings management and stock returns.

2.4 Market effect, earnings management and stock return

All the investors in the market are return maximizers and risk minimizers, and hence they are called mean-variance optimizers. However, the phenomenon works in a frictionless world. Sharpe (1964) modeled the optimization work through a model called the capital asset pricing model (CAPM). CAPM states that there is a positive relationship between risk and return associated with a stock. The market rewards only the systematic component of risk, which is measured by beta. Beta is defined as the proportion of the covariance of asset returns and market returns to the variance of market return. The market does not reward for unsystematic (idiosyncratic) risk because it can be reduced or eliminated by the investors through diversification.

In the accounting literature, equity beta is found to be closely associated with earnings management. Literature addressed two models behind the association. The first model was propounded by Easly and O'Hara (2004), which argues that uninformed investors must be compensated for the loss incurred due to the managers' use of sensitive information for their self-interests. The second model by Lambert *et al.* (2007) documents that earnings management affects the investors' assessments of the distribution of future cash flows, and hence they must be compensated.

Earnings quality is the inverse of earnings management. Empirical evidence, for example, Francis *et al.* (2005) study, shows that poor earnings quality firms have significantly higher equity betas. Bhattacharya *et al.* (2011) demonstrate that earnings quality affects the cost of equity not only directly in a multi-factor asset-pricing scenario, but also indirectly via a stock beta. Eliwa *et al.* (2016) document the association between earnings quality and the cost of equity. Hence, we can say that firms with high earnings quality (lower earnings management) have a lower equity beta than firms with poor earnings quality (higher earnings management). Accordingly, we develop our next hypothesis as follows:

H2. Market beta moderates the relation between real earnings management and stock returns.

2.5 Firm size, earnings management and stock return

The size of a company, also known as market capitalization, represents the magnitude of the company. Stock returns are found to be influenced by the size of a company. This anomaly is referred to as the size effect and was recently explored in the studies such as Fama and French (2012) and Daniel and Titman (1997). The seminal work on "size effect" was performed by Banz (1981), where the size of a firm and the return on common stock are found to be inversely related for firms listed on the New York Stock Exchange (NYSE). Besides, it has been found that smaller firms obtain higher returns than larger firms. In contrast, a study by Ngunjiri (2017) finds a positive impact of size effect on stock returns, implying that large firms have a higher stock return. Oliech (2002) find no impact of firm size on stock returns.

There are two streams of literature on the association between firm size and earnings management. The first stream of research documents negative association, suggesting that large firms are less likely to be engaged in earnings management. For instance, empirical evidence by Paiva *et al.* (2019) shows that as the large firms are subject to greater regulation and strict monitoring by financial analysts, and hence they are less likely to be engaged in earnings management. Klein (2002) document that large firms are usually audited by more competent auditors (Big Five) who can avoid earnings management. Also, large firms have greater concern for their reputational capital due to better appreciation of the market environment and better control over their business operations; hence, they are expected to avoid earnings management, which may hamper their reputation.

The second stream of the research documents a positive association, implying that large firms are more likely to be engaged in earnings management relative to their smaller counterparts. Large firms face more capital market pressure (Barton and Simko, 2002); hence, they engage more in earnings management to meet or beat analysts' earnings forecasts (Myers and Skinner, 2000). Besides, large firms have greater bargaining power with their auditors; hence, their negotiation power helps them put their interest before the shareholders' interest (Francis and Krishnan, 1999). Therefore, they engage in earnings management. Thus, given the strong association between the size of the company, stock return and earnings management, we develop our next hypothesis as follows:

H3. Size effect moderates the relation between real earnings management and stock returns.

2.6 Book-to-market value of equity, earnings management and stock return

The value effect is one of the prominent equity market anomalies in empirical finance literature. The value effect is the well-researched effect that says stocks with high ratios of fundamentals-to-price (value stocks) earn higher returns than stocks with low ratios of fundamentals-to-price (growth stocks). However, mixed empirical evidence such as the study by Oliech (2002) found that the ratio of book-to-market value has no relationship to the companies' returns. Meanwhile, Petkova and Zhang (2005) found empirical support for the Fama–French hypothesis by documenting that investors consider low market value to book value firm stocks riskier in "bad" times.

The value effect, operationalized as the proportion of market value to book value of share, has a greater influence on the earnings management practices of the firm. In earnings management literature, it is used to operationalize the growth opportunities of the firm. Studies found that high-growth firms are more likely to be engaged in earnings management to maintain the stream of earnings (Lee *et al.*, 2006) and to reduce the intervention of

government (AlNajjar and Riahi-Belkaoui, 2001; Roychowdhury, 2006; Cohen and Zarowin, 2010). Therefore, given that growth opportunities are associated with stock returns as well as earnings management, we develop our next hypothesis as follows:

H4. Value effect moderates the relation between real earnings management and stock returns.

2.7 Momentum strategy, earnings management and stock return

The tendency of the financial market that past winners and past losers have an impact on the future stock price movement is referred to as the momentum effect. However, if the markets are efficient, it is impossible to make profits or earn excess returns by following the patterns of past winners and past losers. In the finance literature, the application of past return patterns to predict stock price movement is termed as momentum trading.

Jagadeesh and Titman (1993) were the first to study this phenomenon, where they found that the strategy of choosing the stocks based on past six months' returns and holding the same stocks for six months generated an excess return of 12.01% per year on average. Muga and Santamaría (2007) find that the momentum strategy generates excess returns in the emerging markets than developed markets due to the highly volatile nature of the stocks in the emerging nations. The momentum effect is found to be consistent with the income signaling theory, where firms are intended to maintain a consistent stream of earnings to signal their abilities. Accordingly, it is more likely that firms with higher momentum are more likely to be engaged in earnings management to avoid reporting fluctuating income. Accordingly, our hypothesis is as follows:

H5. Momentum effect moderates the relation between real earnings management and stock returns.

3. Data collection and research design

The data for this study are sourced from the prowess database maintained by the Centre for Monitoring Indian Economy (CMIE). We initiate the analysis with all the 4,824 constituent stocks of the Bombay Stock Exchange. However, to ensure liquidity and avoid sample-selection bias, we retain only those stocks having a minimum of 300-week observations during our sample period, that is, January 2000 to December 2019. Thus, we left with the final sample of 3,085 stocks, covering 240 months over 20 years. The data are winsorized at 2% percentiles on each end to eliminate the effect of outliers. The definition and measurement of all variables used in the study are explained in Table 1.

Click here to see Table 1: https://docs.google.com/document/d/1G3SzOqg9SzKetI_6-cofFCXOvHYpo7tp/edit

Following standard portfolio methodology, we use the following steps to test the impact of REM in the cross-sections of Indian equity returns. First, we calculate the monthly excess returns for the stocks. Excess returns are obtained by using the first difference of the natural logarithm of monthly price data, out of which the monthly yield of 90-day Government of India treasury bills has been deducted. Hence, we get a monthly stock excess return.

In the second step, we obtain a systematic risk measure (β) and other cross-sectional characteristics by using appropriate methodologies. The market beta is obtained using the previous 12 months data, including the month for which value is obtained (from month t to t_{-11}). We regress market excess return to the weekly stock excess return available in the last 12 months with a minimum of 30 observations. The market excess return (R_m) used for the regression is the value-weighted portfolio return that comprises all the stocks included in the sample.

Third, we measure REM by using the metrics developed by Roychowdhury (2006).

3.1 Abnormal level of cash flow from operations (A_CFO)

Firms can increase (decrease) sales by offering excessive price discounts (charging high prices) or lenient (stringent) credit terms to customers. However, it comes at a cost of lower (higher) cash flows from operations. Accordingly, the negative (positive) abnormal cash flows from operations are interpreted as evidence of upward (downward) REM. We use the following Roychowdhury (2006) model to measure A_CFO.

$$\frac{\mathrm{CFO}_{i,t}}{\mathrm{AT}_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{\mathrm{AT}_{i,t-1}} + \beta_2 \frac{\mathrm{Sales}_{i,t}}{\mathrm{AT}_{i,t-1}} + \beta_3 \frac{\Delta\mathrm{Sales}_{i,t}}{\mathrm{AT}_{i,t-1}} + \varepsilon_{i,t} \quad (1)$$

Where CFO is cash flow from operations. AT is total assets, Sales is sales revenue, ΔSales is change in sales from period *t*-1 to *t*. Residuals ($\varepsilon_{i,t}$) measure A_CFO.

3.2 Abnormal level of production costs (A_PROD)

Firms can increase (decrease) net profits by decreasing (increasing) the cost of goods sold. They do so by engaging in over (under) production because increase (decrease) production spreads fixed overhead costs over a larger (smaller) number of units, which results in reducing (increasing) the fixed costs per unit. Accordingly, the positive (negative) value of abnormal production costs implies upward (downward) REM. The residual of the following model (4) measures A_PROD.

$$\frac{\mathrm{PROD}_{i,t}}{\mathrm{AT}_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{\mathrm{AT}_{i,t-1}} + \beta_2 \frac{\mathrm{Sales}_{i,t}}{\mathrm{AT}_{i,t-1}} + \beta_3 \frac{\Delta\mathrm{Sales}_{i,t}}{\mathrm{AT}_{i,t-1}} + \beta_4 \frac{\Delta\mathrm{Sales}_{i,t-1}}{\mathrm{AT}_{i,t-1}} + \varepsilon_{i,t} \quad (2)$$

Where PROD is production costs measured as the sum of the cost of goods sold and change in inventory.

3.3 Abnormal level of discretionary expenses (A_DISX)

Firms can increase (decrease) net profits by decreasing (increasing) their non-operating expenses. For instance, they cut (spend) on discretionary expenditures such as advertising expenses; research and development; and selling, general and administrative (SG&A) expenses. Accordingly, the negative (positive) abnormal discretionary expenditure indicates an upward (downward) REM activity of firms. The residual of the following model (5) measures A_DISX.

$$\frac{\mathrm{DISX}_{i,t}}{\mathrm{AT}_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{\mathrm{AT}_{i,t-1}} + \beta_2 \frac{\mathrm{Sales}_{i,t-1}}{\mathrm{AT}_{i,t-1}} + \varepsilon_{i,t} \quad (3)$$

Where DISX *i*s discretionary expenses consisting of SG&A and R&D.

For convenience, we have multiplied A_CFO and A_DISX by negative one, so, like A_PROD, a smaller (larger) value represents more downward (upward) REM. Following Zang (2012), we measure REM as sum total of A_CFO, A_PROD and A_DISX.

Fourth, we formed univariate sorted equal-weighted portfolios to assess the level of association and direction between earnings management and stock returns at the portfolio level. We equally divide our final sample of 3,085 stocks into deciles based on the descending order of REM, where the high (low) portfolio shows the result for the stocks having the highest (lower) value of REM. The high-low (H-L) portfolio presents the difference (spread) of high minus low portfolios. Unlike other pieces of research, we consider the actual values of REM rather than absolute values. Therefore, the level of REM ranges from negative values to positive values; the disclosed negative (positive) values demonstrate that firms are engaged

in downward (upward) earnings management. The obtained one-month-ahead portfolio excess returns are regressed to Carhart's (1997) four-factor asset pricing model to assess the actual effect of REM on Indian stock returns after controlling cross-sectional effects prevalent in the equity market.

In the next step, we form bivariate sorted portfolios to disentangle and control the effect of various variables such as market risk, size effect, value effect and momentum strategy in the cross-sections of stock returns. Unlike univariate portfolios, all the stocks are first sorted based on the respective variables in five quantiles, which are further divided by using the descending order of REM in the other five groups. Accordingly, we get a total of (5×5) 25 portfolios. Lastly, we applied Fama Macbeth's (1973) cross-sectional regression to ensure the robust explanatory power of REM in the cross-sections of Indian stock returns.

4. Empirical results

4.1 Descriptive statistics

Table 2 presents descriptive statistics for the variables. Table 2 shows that, on average, the excess return is negative 0.48% per month, that is, stock returns are lesser than the risk-free rate of return. It implies that, on average, the Indian stock market generates a negative risk premium. Though the observed phenomenon contrasts with the claim of risk-return trade-off, it is consistent with the findings of prior studies such as Ali (2019) and Bessembinder (2018). The average value of REM is indistinguishable from zero, as these are residuals from a regression. The positive (negative) values of REM show upward (downward) earnings management. However, the highly positive (5.07) skewed nature of distribution shows that most firms are engaged in downward earnings management. The positive excess kurtosis (195.71) exhibits that REM has fat tail distribution, indicating a significant number of firms are engaged in REM.

Click here to see Table 2: https://docs.google.com/document/d/16lMjE05hzcKDQR4FrbzMpkB7KOpLTS3j/edit

The reported statistics for market risk (*beta*) show an average of 0.89, which is lower than the market beta of one. Though theoretically, the average value of stocks beta should be indifferent from market beta. However, empirical research has observed that stock beta is lower than the market beta (Ali and Badhani, 2020). The mean value of the firm's size (*Size*) is 6.37, which is positively skewed (0.68), indicating that Indian firms are very asymmetric in size. Only a few firms had above-average market capitalization. The average value of the book-to-market ratio (*BMR*) is 0.81, indicating that stocks are overpriced in the market with a positively skewed distribution. The exhibited (0.21) positive mean value of *momentum*, which is negatively skewed, indicates that most stocks have a momentum effect.

4.2 Association between real earnings management and expected excess returns

Table 3 presents a monotonically decreasing portfolio excess returns pattern for the increasing level of portfolio REM loadings. As REM's overall cross-sectional values range from negative to positive, descending sorted portfolios have negative REM loading for the first decile portfolio (negative) that gradually turns positive for the highest (positive) decile portfolio. The negative decile portfolio reveals a positive excess return of 0.56% monthly, which is statistically insignificant. A similar insignificant but negative excess return of −0.94% is presented for the positive decile portfolio; however, the observed spread between the negative and the positive decile portfolios is 1.50% monthly (18% per annum), which is positive and highly significant. Results become more significant when the portfolio returns are regressed to the Carhart (1997) four-factor model, applied to control well-documented cross-sectional effects in the stock returns.

Click here to see Table 3: https://docs.google.com/document/d/19KGTmqkQXjD-FH0mXaVR9ibTcq6WdMJY/edit

Unlike excess returns, the obtained abnormal returns for the decile portfolios are found negative and significant across all deciles. However, the documented return is negative (−0.65%) for lower decile portfolio, which turns higher negative in magnitude, as the level of REM loading increases from negative portfolio to the positive portfolio (−2.68%). It eventually constitutes an N-P spread of 2.03% monthly, higher (24.35%) than the portfolio excess returns and highly significant (7.01). Thus, it demonstrated a monotonically decreasing pattern of abnormal portfolio returns, which recites the same story as presented by the portfolio excess returns. Thus, the obtained results reveal a negative relationship between the level of REM and the stock returns, which rejects the tentative claim of our first hypothesis. Opposite to the claim of no relationship, the study's outcomes establish a significant negative association between interest variables, consistent with income smoothing theory. It indicates if managers indulge in downward earnings management to report a consistent stream of earnings, investors perceive this downward earnings management as an element of risk for which they demand a premium.

The relative higher excess returns documented for lower REM compared to the negative excess return documented for positive and higher REM were found consistent with the very conception of accrual anomaly (Teoh *et al.*, 1998; Xie, 2001; Dayanandan and Sra, 2018). However, the higher and positive excess returns of negative REM deciles have important implications for firms and their investors. At first sight, downward earnings management seems consistent with the idea of conservatism; empirical results do not appear to buy the argument. Instead, such practices discounted at a higher rate than upward earning management, which could have different explanations beyond our understanding. For a situations where the lower returns for higher positive REM seem appeasing investors, higher excess returns demand for negative REM implies it is perceived as a risk source.

4.3 Moderating impact of market risk

To test the moderating impact of market risk (beta) on the association between earnings management and stock returns, we first sort all the stocks into five quantiles based on beta values. Then in each group, we form the five value-weighted portfolios by sorting stocks by REM values; thus, the created portfolio REM loadings range from positive to negative in a descending manner. Portfolio P (*N*) is the portfolio of stocks with the highest positive (negative) REM. The results presented in Table 4 are consistent with the beta anomaly; however, they reveal a positive and highly significant N-P spread across all the beta sorts. These portfolio N-P spreads are increasing from the low beta portfolio (1.40%) to the high beta portfolio (1.82%). This implies that the market demands a higher premium for downward earnings management when the stock experiences higher systematic risk. In other words, we can say that stocks having higher systematic risk are more prone to downward earnings management and discounted by the market at a higher rate than the positive portfolio of the same quantile. The intercepts obtained using the Carhart four-factor model also reveal the same results. Hence, the results of Table 4 show the existence of robust REM anomaly controlling for market risk in the Indian equity market.

Click here to see Table 4: https://docs.google.com/document/d/1dLb9xYhRDmPkF2aYFwKQS0xKYkuhH4Cz/edit

Moreover, the documented higher (lower) N-P spread for the higher (lower) beta portfolios presents a significant moderation in the relationship for the level of earnings management and the cross-section of stock returns. Outcomes of the table reveal a positive relationship between market beta and the REM anomaly. The increasing level of REM anomaly with the increasing level of systematic risk shows a positive moderation. This is consistent with the tentative claim of our second hypothesis (H2); hence, it does not get rejected and instead provides a positive direction to the association.

4.4 Moderating impact of size effect

It is well documented that small size stocks provide higher returns than their larger counterparts. This effect is so significant that it leads to the formation of small stock funds worldwide. Therefore, to capture the size effects in the outcomes of REM sorted portfolios, Table 5 presents the bivariate sorted size and REM portfolios.

Click here to see Table 5: https://docs.google.com/document/d/1HAKiJ3_TFCbmQckuye-MrxbTXXT1zEtS/edit

The results are consistent with the long-established size effect, which is higher for the small-size quantile portfolios and relatively lower for the high-size quantile portfolios. Simultaneously, the table demonstrates a positive N-P accrual spread, which is highly significant for all other size portfolios than small-sized portfolios. That constitutes an average of 1.66% monthly N-P average spread, revealing a premium of negative REM. Moreover, results demonstrate an increasing pattern of N-P spread from small-size stocks to big-size stocks. The small-size portfolio spread, which is 1.00% monthly, increases to 1.63% monthly for the big-sized portfolio. It shows a positive relationship between the level of REM anomaly and the size of the firm. Though the presented results in the table demonstrate a higher level of positive (negative) manipulation in the big (small)-size stocks, a higher (lower) level of N-P spread for big (small)-size quantile accompanies this. That implies positive manipulation in the big (small)-size firms appeases investors more (less), and hence forces big (small) firms to indulge more in the positive (negative) manipulation. That may offer them to portray a more stable image in the market. However, this observed phenomenon could invite a diverse set of explanations for its existence, not limited to our interpretation.

The regression (Carhart, 1997) results reveal the same outcomes; portfolio intercepts demonstrate the same pattern for controlled N-P spread. The N-P spread observed for small stocks (1.08%) is distinguishable from zero that becomes 2.07% monthly for big-sized stocks. Thereby, a higher (lower) N-P spread for big (small) size stocks presents a positive relation between the REM anomaly and the big-size firms. Based on results, one can infer that big-size firms indulge more in the positive manipulation of earnings that commensurate more with the idea of signaling theory and hence found consistent with a strand of research. As the literature highlights, big firms are more sensitive to their corporate image; they portray a stable status for firms with a more agile business portfolio. Therefore, size reveals a positive moderation effect in the impact of earning management on stock returns, which does not reject the third hypothesis, hence clearing the moderation direction.

4.5 Moderating impact of value effect

Table 6 exhibits the N-P portfolio spreads for the 5 × 5 bivariate sorted B/M and REM portfolios. These portfolios are formed to control and disentangle the B/M impact on earnings management's effect across the cross-sections of Indian stocks. Where controlling for the B/M impact, the existence of REM anomaly was found robust in the Indian equity market. Though the excess portfolio returns are consistent with the well-established value effect, their documented N-P spread across the different sorts of B/M portfolios is positive and significant, demonstrating a robust REM anomaly. However, the lower (higher) average accrual portfolio excess return for the lower (higher) B/M quantile implies that growth (value) firms are more prone to do positive (negative) earning management. In other words, one could understand that overvalued stocks do upward earnings management than stocks experiencing undervaluation.

Click here to see Table 6: https://docs.google.com/document/d/1MNIghf9C7sI0_uKeCq-TNunH4ZADRK2e/edit

The increasing pattern of spread from lower B/M quantile to the higher quantile depicts a clear moderation impact of the B/M ratio in the effect of REM on the stock returns. These results are in line with our fourth hypothesis. However, the negative association between

the B/M ratio and the premium of negative earning management conveys something more. The results show overvalued stocks (low B/M) are more sensitive to earnings management. The documented higher N-P spread shows the investor's concern for earnings manipulation; the undervalued stocks reveals its opposite. That suggests overvalued firms indulge less in downward earnings management; otherwise, it results in a higher cost of capital for the firm.

4.6 Moderation impact of the momentum effect

The other well-known cross-sectional effect that is significant in the Indian equity market is the momentum effect. It has been observed that stocks doing well (poor) in the previous twelve months continue to perform well (poor) in the coming months. Therefore, we capture this momentum effect explicitly and reveal the impact of earnings management jointly in the cross-sections of Indian stock returns across the different sorts of momentum. Table 7 presents the bivariate sorted 25 portfolios; these portfolio excess returns are consistent with the prevailing effect of momentum. The higher momentum quantile portfolios have experienced higher portfolio average returns than the lower momentum quantile portfolios. However, on average, Table 7 sustains the bivariate sorted positive N-P spreads. Like other sorted portfolios, Table 7 also exhibits the existence of a premium for downward earning management. The presence of positive N-P spread across quantiles is highly significant: 1.68% monthly for the low momentum portfolios, and increases to 2.30% monthly for high momentum portfolios. This increasing pattern of N-P spread from low momentum portfolios to the high momentum portfolios documents a higher premium for stocks having higher momentum experiencing downward earnings management. The results obtained running the Carhart four-factor model demonstrate the same, which is consistent with the presented average N-P spread showing a robust premium for negative REM.

Click here to see Table 7: https://docs.google.com/document/d/1Gba1VIP00aeTZyxUZ4KeBWoJkfK989Gz/edit

On the one hand, the positive spread of N-P portfolios documented across the momentum quantiles confirms the existence of REM anomaly. The increasing pattern of N-P spread from low momentum quantile to the high momentum quantile reveals a positive moderation effect of momentum factor. The results documented for higher momentum quantiles show higher sensitivity to the level of earning management, which shows a positive association between the level of accrual anomaly and stock momentum. That does not reject our fifth hypothesis and clarifies the positive direction of the association between interest variables.

4.7 Cross-sectional analysis

In the last step of the analysis, we employ Fama–Macbeth cross-sectional regression to ensure REM anomaly in the cross-sections of the Indian equity market. Table 8 presents the monthly cross-sectional regression results of Fama Macbeth (1973). We run six different specification models numbered I to VI, which respectively address all considered variables in the cross-sectional regression while aiming to reveal their unimpacted effect on REM anomaly in the expected stock returns. These regressions are modeled in such a manner that they elicit accrual anomaly effect in the cross-sections of stock return once in isolation and then controlling different other variables together.

Click here to see Table 8: https://docs.google.com/document/d/1YWJE_az89ShAk4i2gLaa9vLz9FdIT4oV/edit

The REM's obtained regression coefficient for regression I is −1.67, which is highly significant (−9.83). It is increasing as we are excluding other cross-sectional variables from the regression one by one. However, controlling for no other variable's regression coefficient remains negative (−0.95) and highly significant (−4.15), which shows a robust existence of a

negative relationship between REM and cross-sectional stock returns. These negative regression results are consistent with the portfolio results shown in Tables 4 to 8, which support the existence of a robust REM anomaly.

Apart from these, the negative intercept values of regression highlight the absence of a risk premium. The added beta variable presents significant negative coefficient values that imply there is no premium for systematic risk. Consistent with Ali and Badhani (2020), the documented negative beta coefficients from regression II to V reveal beta anomaly in the Indian equity market, while, on average, the added size effect exhibits no significant impact in the cross-section of stock returns. Simultaneously, consistent with the existing value effect (Cakici *et al.*, 2013; Cheung *et al.*, 2015; Ali, 2019) in an emerging market, the B/M ratio demonstrates highly positive and significant coefficient values across the different regression run. These positive values establish a strong positive relationship between the cross-sectional stock returns and firms' B/M ratio that implies a value effect in the Indian equity market. Like the B/M ratio, the added momentum factor renders positive results. Though the momentum factor's obtained regression coefficient values are 0.10, these are statistically highly significant. This exhibits a small and statistically strong momentum effect in the cross-section of Indian equity returns. Overall, the results shown in Table 8 are consistent with the univariate and bivariate sorted portfolio-level analysis that ensures the existence of REM anomaly in the Indian equity market.

5. Conclusion

The study aims to examine the association between REM and stock returns by considering the direction and endogeneity nature of REM. In other words, the study aims to provide a comprehensive view of the relationship between REM and stock returns after controlling for well-known cross-sectional effects such as market effect, size effect, value effect and momentum effect. Based on the outcomes of 3085 BSE listed stocks and the use of univariate and bivariate sorted portfolio-level analysis, the study put forth some important findings.

The results of the study exhibit lower (higher) returns for the upward (downward) REM. However, unlike prior studies, our results show a premium for the stocks that experienced downward REM. This finding is consistent across all the levels of analysis. Further, our results exhibit that firms with higher beta, large firms, overvalued firms and firms with higher momentum quantiles are more likely to be engaged in upward earnings management. The relationship between REM and stock return is found to be consistent for all the considered moderation effects.

The findings have important implications for investors and managers. They suggest investors form suitable investment strategies for fetching better returns by taking different long and short positions based on direction (upward and downward) of REM. The findings suggest managers incorporate the differential impact of forms of REM in their short- and long-run corporate decision-making because investors are found to assign different weights to different forms of earnings management depending upon the magnitude of risk involved in each form of earnings management.

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Further reading

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