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Impact of Earnings Management Practices on Stock Return

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This paper investigates the impact of earnings management (real and accrual) on stock returns of Pakistan stock exchange (PSX) listed companies. The study is done by testing a separate relationship of accrual and real earnings management and their collective relationship with the stock return. The study is conducted on 3900 firm-year observations from the non-financial PSX listed companies for the sample period 2005-17. The findings of the study show that a significant and negative relationship exists between stock returns and real and accrual earnings management. Moreover, the combined impact of real and accrual earnings management on stock return is also found to be significantly negative. This paper could prove a valuable addition to the knowledge of investors because investors can more or less price accrual earning management.

Keywords: *Stock Returns; Real earnings management; Accrual earnings management; Total earnings management; Pakistan Stock Exchange*

JEL Classification: G32, C22

Introduction

Many factors affect the stock prices, and one of those factors is earnings reported in financial statements (Louhichi, 2008). A study conducted by Robert (1994) indicates that among many individual factors, accounting information presented in financial statements (e.g., accounting earning, market to book, price to earnings ratio, and expected corporate earnings) is a valuable consideration for the investors in stock valuation. It ultimately affects the investor's behavior and their decision to buy or sell, leading to changes in stock prices. Many investors are not well informed about minute changes in the market, and they do not go deep into the analysis of specific components of financial statements, and only rely on the bottom line earning figures (Abad, Cutillas-Gomariz, Sánchez-Ballesta, & Yagüe, 2016). Furthermore, Investors are very considerate towards earnings announcement as a study shows that investors react positively to the good news about earnings more extensively than adverse reactions towards bad news (Barberis, Shleifer, & Vishny, 1998).

Being aware of this phenomenon, managers can manipulate earnings to bring favorable changes in stock prices (Graham, Harvey, & Rajgopal, 2005; Wu, Lin, & Fang, 2014). Wu et al. (2014), in his study, shows that the second digit of EBIT, Net Income and EPS serves as main reference points; therefore, managers round up the concerned digit number to influence the investors' decisions. Another study shows that managers use different non-GAAP techniques to manipulate earnings and, ultimately, stock

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prices (Booth, Broussard, & Loistl, 1997). Investors may abnormal returns after earning announcements, which give the managers further incentives to play with accounting figures to serve different interests (Louhichi, 2008).

Zang (2012) highlighted two of the many manipulation methods, real earnings management, and accrual management. Accrual earnings management is likely to bias reported earnings in a particular direction without affecting the underlying transactions and cash flows (Gao, Gao, & Wang, 2017). Whereas, real earnings management is influencing routine business operations (e.g., providing excess cash discounts, reducing R&D expenditure, and overproduction) to affect the earning figures. (Roy Chowdhury, 2006). These earnings management practices tend to affect stock returns (Chan, Chan, Jegadeesh, & Lakonishok, 2006; Li, 2010).

This study aims to study the association of earnings management with the stock return, specifically, the separate and combined relation of real earnings management (REM) and accruals earnings management (AEM), with stock return. The previous studies have mostly focused on the effect of AEM on stock return, whereas very little research has been done on REM and their combined effect. Usually, studies on earnings management have been limited to developed and some developing countries. To the best of our knowledge, there is very little or no prior research that has been conducted focusing on a wide range of earnings management and stock returns in the Pakistani context. It motivated us to investigate how stock returns of the Pakistan Stock Exchange-listed companies are associated with earnings management. Another reason for analyzing the relationship of REM is the fact that it not only plays a part in the manipulation of accounting earning but also affects businesses and their cash flows in the long run (Roy Chowdhury, 2006). Besides, REM is difficult for an average investor to comprehend and for regulatory bodies, including auditors, the Board of Directors, and other stakeholders, to detect through simple monitoring (Kim and Qi 2010). Therefore, this paper can provide implications for the stakeholders of the firms, especially investors.

This paper contributes to the existing literature of earnings management by exploring the effect of real and accrual earnings management on stock returns in the Pakistani context. Although many researchers have studied the association of AEM with the stock return, to our knowledge, quite a few studies have targeted to study the association between REM and stock return. Not only this, but this paper also provides an addition in the literature by studying the combined effect of AEM and REM as total earnings management. (Discussion of results here).It alarms the average investor to have an insight into AEM as well as REM before trading stocks of any company and auditors, boards, regulators, and other external stakeholders for monitoring the earning manipulations of the firms before giving any evaluation results.

The rest of the paper is organized as follows. Section 2 comprises the literature review related to the Pakistan Stock market, Stock return determinants, earnings management, and its types. Section 3 describes the research methodology and design. Moreover, Section 4 discusses the results, and finally, section 5 concludes the study.

Literature Review

To provide context to this study, we have briefly discussed some features of the Capital Market of Pakistan in this section. Moreover, we have also discussed different factors that determine the stock return and have presented a conceptual framework on earnings management.

Capital Market of Pakistan

The Pakistan stock exchange (PSX) is the result of the amalgamation of three stock exchanges: 1) Karachi Stock Exchange; 2) Lahore Stock Exchange (LSE), and 3) Islamabad Stock Exchange (ISE). The trading had subsequently increased after this amalgamation in June 2016. Although there is a weak corporate governance and institutional framework in Pakistan, there are high returns in the Pakistan stock exchange

market (Cheema, Munir, & Su, 2016), coupled with higher volatility. Currently, there are 545 financial and non-financial companies listed on the Pakistan stock exchange. Stock markets of the same size as the PSX are not better performing than PSX. However, a small number of giant investors own most of the stocks of the PSX listed companies (Bhutta & Suleman, 2017) and this concentrated ownership structure leads to information asymmetry and manipulation of small investors (Shah, Shah, & Khan, 2017). Recent macroeconomic and political developments have significantly influenced the liquidity of this market and the capital gain to its stockholders (Iqbal, 2012).

Stock markets in emerging economies like Pakistan are inefficient, and trading in these markets is speculative (Mehr-un-Nisa & Nishat, 2011). Pakistan's stock market is characterized by higher volatility in stock prices and, ultimately, in stock returns. KSE-100 index, the benchmark of the market, has seen many booms and busts since inception (Khan, 2006; Khan & Abbas, 2013). Although Pakistan's stock exchange stands out among the most quickly developing markets in the south Asian region, and it has produced more than 20% of the profit margin on average in the earlier decades. However, it has little investor base compared to other counties' security exchanges like Iran, India, Bangladesh, and Malaysia. One reason for this nature of PSX is that financial literacy and financial inclusion in Pakistan is quite low. Individuals, for the most part, go for putting their reserve funds in banks as savings, as opposed to putting resources into stock or bond market, which may not remunerate them for the inflation rate in the economy. In worst scenarios, they do not even think of keeping money in banks but under their pillows. Another reason can be that speculators are bound to put resources into exaggerated/overvalued stocks, and most often, overvaluation is the consequence of earnings manipulations done by the managers to make the firm or stock attractive for outside funding and less expensive financing. So investors' choices are dependent on yearly reported earnings of firms, which can be deceptive. When investors are unable to get the ideal outcome, they can be baffled, which restrains their further interest in the stock exchange (Usman et al., 2018).

Determinants of Stock Return

Stock returns fluctuate continuously over time due to different factors. Those factors include firm-specific factors, industry-related factors, and microeconomic factors (Kim & Qi, 2010; Özlen, 2015). Our study includes some selected firm-specific variables that influence the stock value.

Many studies have explored the firm-specific determinants of stock return. One study showed that 'investor's stock return has a negative relationship with earnings management (Chan et al., 2006). Wu et al. (2014) used the Fama-French three-factor model, which consists of size, market-to-book ratio, and market return, in which he added earnings management as the fourth factor which can determine the stock return. Özlen (2015) states that stock value is positively associated with the book value of stocks. Other factors, such as total asset turnover, the current ratio, net profit margin, financial leverage ratio, and price to earnings ratio, are also associated with the stock returns but showed different results for different sectors or industries. Many accounting ratios which are firm-specific, can also be the determinants of stock return. DEMİR (2001) studied different accounting ratios—financial leverage ratio, profitability ratio, return on assets, dividend payout ratio, price to earnings ratio, market to book value ratio, turnover ratio, earnings per share, net profit growth rate, and the rate of increase in equity. His results show that these factors have effect on stock return, but the most influential was market to book ratio. Canbaş, Kandır, and Erişmiş (2007) also studied the relationship between the firm characteristics and stock returns and found that firm size, book-to-market ratio, book leverage, market leverage, and earnings-to-price ratio are associated with stock return.

Earnings Management

Earnings management is that the managers or accountants of any firm use their judg-

ments about specific items in financial reports, or they make changes in recording the transactions. Healy and Wahlen (1999), defined earning management as: "use of judgment in financial reporting and in structuring transaction to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence the contractual outcome that depends on reported accounting numbers." The purpose behind this can be (1) to manipulate the information so that the distorted information of the economic condition of the firm can affect the decision making of few stakeholders or (2) to influence the benefits/burdens of any contractual agreement which depend on the details presented in the financial reports. One of the examples of such earnings management is in the study conducted by Wu et al. (2014) on Taiwanese firms. The study found that firms were involved in window dressing of earning figures—Earnings before Interest and Tax (EBIT), Operating Income and Earnings Per Share (EPS)— to affect the investor's decision. Chan et al. (2006) also revealed that managers are involved in earnings manipulation, and therefore, the firm's stock price or stock return is also affected.

The presence of different accounting and reporting methods or standards is creating a room for managers/accountants to use judgments while reporting the accounting figures. These judgments can be related to the choice of inventory costing method (Weighted average, LIFO or FIFO), Depreciation methods (accelerated or a straight line), the scrap value of long-term assets, benefit plans, expected life of assets, capitalization or expensing out certain cash disbursements, deferred asset or liability, asset revaluation, working capital and recognition of revenue and expenses.

Companies sometimes use conservative accounting and reporting techniques. Conservatism is defined as a continuous difference between Net assets reported in Financial Statements and their market value due to the aggressive write-down of assets (Penman & Zhang, 2002). To illustrate, a firm can prefer the LIFO method of costing inventory over FIFO. Usually, the inventory bought later is more costly than the older one, so by expensing out new inventory first, COGS increases, while the inventory that is unsold remains in the balance sheet at a lower amount. Similarly, for accelerated depreciation, more amount is expensed out as depreciation expense, and long-term asset book value in balance is reported at a lower amount. The reason behind using this technique can be that some accounting ratios, used for firm evaluation, usually are higher under conservative accounting (Caskey & Laux, 2017; Kothari, Leone, & Wasley, 2005; Penman & Zhang, 2002). As prior literature suggests, accounting ratios have significant relation with stock returns (Canbaş et al., 2007; Chalevas & Florou, 2010), we can say that a higher level of conservatism leads to more manipulation in the system.

Along with this, many researchers have worked on two types of earnings management techniques: (1) Real Earnings management (REM) and (2) Accrual Earnings Management (AEM), and some have studied their relationship with stock return. (Jaafar, Mouselli, & Abdulraouf, 2014; Kim & Qi, 2010; Livnat & Massimo, 2006; Salehi, Tagribi, & Farhangdoust, 2017)

Accrual Earnings Management

Accounting standards require to show a real picture of the financial and economic performance of firms. For which revenues and expenses are recorded when incurred irrespective of receipt or disbursement of cash. This method of recording is based on accrual accounting, and it shows the actual performance of a firm. Since accrual accounting is different from cash-based accounting, accruals represent the difference in cash flow from operations and accounting earnings (Al Saedi, 2018). Changes in working capital drive accruals, which is directly proportional to the growth in sales. Therefore, higher levels of accruals suggest strong historical growth in sales (Chan et al., 2006). However, firms use these accruals for earnings management. According to Trejo-Pech, Weldon, and Gunderson (2016), "AEM occurs when accruals, the difference between earnings and cash

flow, are manipulated with no direct cash flow consequences." The presence of different accounting and reporting methods or standards is creating a room for managers/accountants to use discretion while reporting the accounting figures. These judgments can be related to the choice of inventory costing method (Weighted average, LIFO or FIFO), Depreciation methods (accelerated or a straight line), the scrap value of long-term assets, benefit plans, expected life of assets, capitalization or expensing out certain cash disbursements, deferred asset or liability, asset revaluation, working capital and recognition of revenue and expenses (Penman & Zhang, 2002).

Real Earnings Management

Roy Chowdhury (2006), in his article, has pioneered one of the influential works of real earnings management. He defines real earnings management as: "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations." According to Roy Chowdhury (2006), Real earnings management is conducted through manipulation in companies' operational decisions. REM is the direct or indirect manipulation in cash flows through real activities such as offering discounts or decreasing prices to increase the sales abnormally, overproduction to decrease the per-unit fixed cost, and reducing the discretionary expenses to increase the profit (R&D, Advertising expense and other operating expenses). If these activities are done simultaneously, they may depict an ambiguous picture of earnings because: (1) discounts decreases earnings, and (2) reduction in discretionary expenses and overproduction leads to an increase in earnings.

The difference between AEM and REM is that managers usually engage in REM not by aggressive accounting policies, but by maneuvering the real activities. Firstly, the managers are attracted to use REM, because there are fewer chances for real earnings management in contrast with AEM to be detected by auditors or regulators. Zang (2012) found that managers engage in the trade-off between AEM and REM based on their relative costs, and detection by auditors and regulators is one of such costs. A top executive survey by Graham et al. (2005), provides evidence that managers are involved in earnings management more than accrual earnings management because it is less likely to be scrutinized by auditors and regulators. Secondly, companies are involved in REM because they can easily hoard information through it; the market cannot understand these abnormal operations timely (Francis, Hasan, & Li, 2016). Thirdly, REM helps companies in meeting their earnings benchmark (GUNNY, 2010). Haga, Höglund, and Sundvik (2018) discussed that public firms are more likely to engage in real earnings management than private firms (Haga et al., 2018; Teoh, Welch, & Wong, 1998). Real earning manipulation is a strategy to promote a company's ability to bear risk related to the cash flow and operations of the company (Yuliana, Anshori, & Alim, 2015).

Accrual Earnings Management and Stock Return

Many research-works show the effect of AEM on stock return. According to Sloan 1996, higher accruals represent a low earning quality, which leads to a decrease in future stock returns and vice versa (Sloan, 1998). Chan et al. (2006) further reinforce this relationship; according to him, firms with high current accruals experience a further increase in accruals in coming years with deteriorated cash flows. The high accruals show higher levels of earnings and sales growth in previous years. So, companies continue to report growing earnings, even as accruals are high and only in the subsequent year, earnings show signs of deterioration. This continuous trend of accruals and operating income gives well-built insight to investors that managers may be involved in earnings management, misleading the market. Another study conducted in the Tehran stock exchange shows a significant relationship between earnings quality and stock return (Salehi et al., 2017). Livnat and Massimo (2006) Conducted one such study

showing this relationship between AEM and stock return around SEC filing days. His results showed a significant relationship between earnings management with stock return. Companies with extremely low accruals at the quarter-end had abnormal positive returns in two days after SEC filings, while extremely high accruals led to negative abnormal returns in the same period. This study has implications for an investor to analyze the accruals to somehow determine future returns. In our study we try to examine the relationship between Accrual earnings management and stock return.

$H_0$1: There is no significant relationship between Accrual Earnings Management and Stock Return

Real Earnings Management and Stock return

To the best of our knowledge, very little work has been done on determining the effect of REM on stock return. Li (2010), in his study, investigated the extent to which REM affects subsequent operating performance and whether investors recognize the consequences of REM. His results showed that REM affects the operating performance negatively and that investors recognize the myopic implications of abnormal sales, overproduction, and reduction in selling, general, and admin expenses. Manipulation in real activities affects reported earnings, leaving either a good or adverse effect on the stock price and, ultimately, stock return (Louhichi, 2008). In our study, we aim to determine whether there is a significant relationship between real earnings management and stock return or not.

$H_0$2: There is no significant relationship between Real Earnings Management and Stock Return

In the literature by Roy Chowdhury (2006), real earnings management involves three elements: (1) Sales Manipulation, (2) Over Production, and (3) Discretionary expense manipulation (described later in the article). Therefore, we need to examine the relation of these elements with stock return individually.

$H_0$2a: There is no significant relationship between Sales Manipulation and Stock Return.

$H_0$2b: There is no significant relationship between the Overproduction and Stock Return.

$H_0$2c: There is no significant relationship between Discretionary Expense and Stock Return

REM, AEM and Stock return

We also aim to see the joint effect of AEM and REM on stock return. As far as we know, little or no research has been done on this relationship in Pakistan; therefore, we want to determine whether there is a significant joint effect of AEM and REM on stock return or not. For this, we are testing the null hypothesis:

$H_0$3: There is no significant combined effect of Real Earnings Management and Accruals Earnings management on Stock Return.

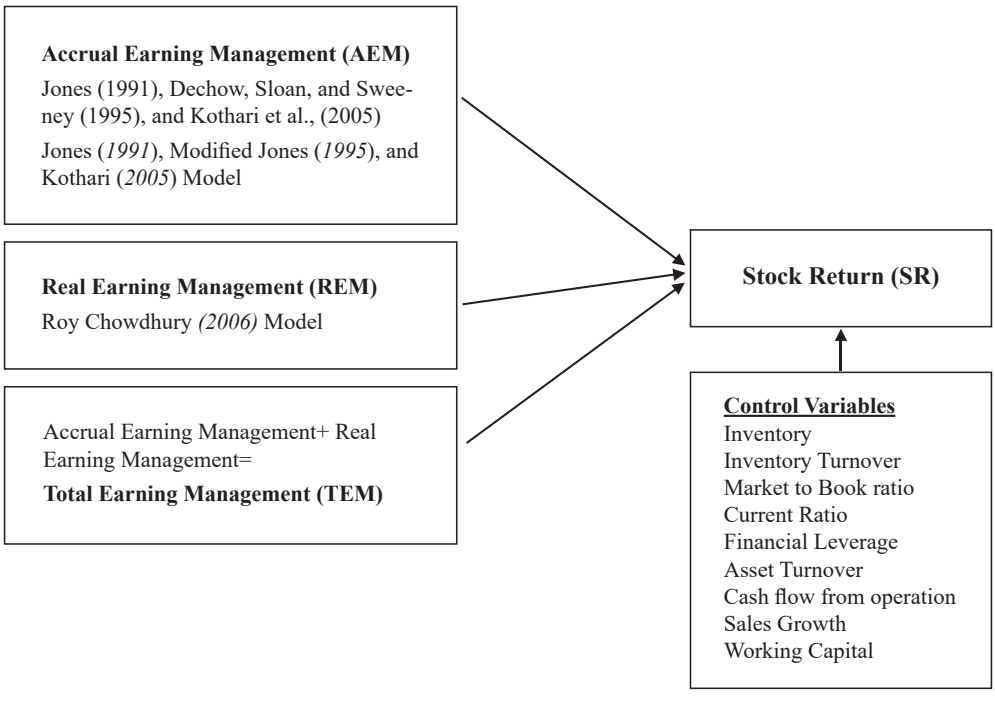
We have used three different proxies of accrual earnings management, i.e., AEM through Jones (1991) model, AEM through Dechow et al. (1995) model, and AEM through Kothari et al., (2005) model, in our paper. We have estimated the REM through Roy Chowdhury (2006) Model. Sales manipulation, overproduction, and discretionary expense are used as proxies for Real Earnings management as per the model. Stock return is the dependent variable in the study. The control variables that have been used for determining the impact of AEM and REM on the stock return are inventory, inventory turnover, market to book ratio, current ratio, financial leverage, and asset turnover, cash flow from operations, sales growth, and working capital.

Research Methods

Sample Selection and Data Sources

For our study, we are using the panel data because it is one of the best analytical tools for reducing the omitted variable bias and endogeneity bias. Panel data analysis helps us to see

Figure 1. Conceptual Framework



Source: Authors' estimate (2020)

the average relationship between variables over the period, which we cannot determine through cross-sectional or time-series data analysis methods. For our study, we have collected the data from different data sources: (1) Bloomberg terminal, (2) the State Bank of Pakistan's five-year financial statements analysis reports, and (3) Company's websites. We have used different sources to both collect and authenticate the data. Data is collected from 2005 to 2017. In this study, we have chosen 450 non-financial listed companies of the Pakistan stock exchange as a sample in our study. We have excluded financial companies because their reported standards are not comparable to non-financial companies. However, among them, only 300 firms' data was available, resulting in 3900 firm-year observations. We have used regression analysis techniques for analyzing the relationship between our variables of interest.

Research Methodology

As described earlier, we have used two techniques of earnings management, (1) Real earnings management and (2) Accruals earnings management, described with details in the following section.

i. Real earnings management based on Roy Chowdhury framework

We have used the models proposed by Roy Chowdhury (2006) for measuring real earnings management. The framework suggests three proxies for REM: (1) sales manipulation, (2) abnormal production, and (3) discretionary expenses manipulations. He has estimated three different models for these manipulations. He estimates sales manipulation taking the ratio of cash flow from operations at the current period (at time *t*) with total assets at the beginning of the current period (at time *t-1*) as a proxy for sales manipulations and defined it as the linear function of sales and change in sales in the current period.

$$\frac{CFO_{it}}{Assets_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{Assets_{it-1}}\right) + \beta_1\left(\frac{Sales_{it}}{Assets_{it-1}}\right) + \beta_2\left(\frac{\Delta Sales_{it}}{Assets_{it-1}}\right) + \varepsilon_{it} \quad (1)$$

Here, CFO_{it} is cash flow from operations at time *t*, $Assets_{i,t-1}$ is total assets at the beginning of the

current period, $Sales_{it}$ is sales at the current period and $\Delta Sales_{it}$ is the difference between sales in the current period and sales in the previous year ($Sales_{it} - Sales_{it-1}$).

Production cost, here, is the sum of the cost of goods sold and changes in inventory. Roy Chowdhury (2006) used Production cost in the current period as a proportion to the total lagged value of assets for determining abnormal production costs.

$$\frac{PROD_t}{Assets_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{Assets_{It-1}}\right) + \beta_1\left(\frac{Sales_{It}}{Assets_{It-1}1}\right) + \beta_2\left(\frac{\Delta Sales_{It}}{Assets_{It-1}}\right) + \beta_2\left(\frac{\Delta Sales_{It-1}}{Assets_{It-1}}\right) + \varepsilon_{it} \quad (2)$$

Discretionary Expenses include R&D, advertising expenses and other selling, general and admin expenses (for maintenance cost), modeled as,

$$\frac{DISPEX_{it}}{Assets_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{Assets_{it-1}}\right) + \beta_1\left(\frac{Sales_{it-1}}{Assets_{it-1}}\right) + \varepsilon_{it} \quad (3)$$

Unlike other equations, $Sales_{it-1}$ has been used instead of $Sales_{it}$ for determining REM due to discretionary expenses. The reason for doing so is that it creates the following problem: if we use $Sales_{it}$ in the regression than the residuals would exhibit smaller value when the firm would have used sales manipulations even though the managers have not reduced the discretionary expenses. Therefore, the discretionary expenses have been regressed with lagged values of sales to reduce this problem.

In addition to this, for Accruals earnings management, we have used three models described as following.

ii. Accruals earnings management based on Jones (1991) and modified jones model by Dechow et al. (1995):

Jones (1991), in his article "Earnings management during import relief investigation," used a time series model to investigate the relationship between total non-discretionary accruals and a cross-sectional test of earnings management. His model for determining this relationship has contributed a lot in the literature of Accruals earnings management and became the basis for further studies. For calculating total accrual, Jones developed following the model:

$$\frac{TA_{it}}{AT_{it-1}} = \beta_0 + \beta_1\frac{1}{AT_{it-1}} + \beta_2\frac{\Delta REV_{it}}{AT_{it-1}} + \beta_3\frac{PPE_{it}}{AT_{it-1}} + \varepsilon_{it} \quad (4)$$

Here, the dependent variable is TA_{it} which is the total number of accruals at a given time for a specific firm. It is calculated as:

$$TA_{it} = \Delta CA - \Delta CL - \Delta Cash + \Delta Short\ Term\ Debt - Depreciation \quad (5)$$

Whereas, AT_{it-1} is total assets of a firm at a given time, ΔREV_{it} is the change in revenue, PPE_{it} is the gross property plant and equipment of a firm at a given time, and ε_{it} is an error term in a given year for a firm. In the model, i is the firm index, and t is the year Index.

Dechow et al. (1995), in the article "Detecting Earnings Management," have modified the jones model. They adjusted changes in revenue in the model with the change in receivables. It assumes that all changes in credit sales are because of earnings management. His modifications are based on, that managers find it easier to use discretion in credit sales than cash sales for earning manipulations. The modified Jones model is as follows:

$$\frac{TA_{it}}{AT_{it-1}} = \beta_0 + \beta_1\frac{1}{AT_{it-1}} + \beta_2\frac{\Delta REV_{it} - \Delta REC_{it}}{AT_{it-1}} + \beta_3\frac{PPE_{it}}{AT_{it-1}} + \varepsilon_{it} \quad (6)$$

Here ΔREC_{it} is the change in receivables added variable by Dechow et al. (1995).

iii. Accruals earnings management based on Kothari:

The third model that we have used for Accrual earnings management is of Kothari. He used "Performance matched discretionary accruals measures" in his study. He based his study on the Jones model and added the performance factor. ROA is a factor that can control the effect on measured discretionary accruals' performance for the detection of abnormal operating performance using a matched-firm research design. (Kothari et al., 2005)

$$\frac{TA_{it}}{AT_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{AT_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{AT_{i,t-1}} + \beta_4 ROA_{it} + \varepsilon_{it} \quad (7)$$

The reasons for using ROA are: (1) Earnings deflated by assets equals a return on assets, which in turn measures the performance. (2) The prior research, analyzing long-run abnormal stock return performance and abnormal operating performance, finds matching on ROA results in better, specified, and more robust tests compared to other matching variables.

iv. Stock Returns

To measure the stock return, we applied the model used in a study by Chalevas and Florou (2010) for determining control variables.

$$SR_{it} = \beta_0 + \beta_1 PM_{it} + \beta_2 current\ ratio_{it} + \beta_3 asset\ turnover_{it} + \beta_4 financial\ leverage_{it} + \beta_5 working\ capital_{it} + \beta_6\ inventory\ turnover_{it} + \beta_7 MV/BV_{it} + \varepsilon_{it} \quad (8)$$

In this study, we used a multiple regression model where the stock return is the dependent variable. Whereas, independent variables are ROS (return on sales), the current ratio, asset turnover, financial leverage, operating working capital, inventory turnover, EBITDA margin, and the ratio of market to book value. Moreover, many research (Kim & Qi, 2010; Li, 2010; Salehi, Tagribi, & Farhangdoust, 2018; Zang, 2012) have used other control variables too for studying earnings management (both AEM and REM)and regressing it with the stock return, such as Cash flow from operations (CFO), size, return on assets (ROA), Sales, and inventory.

Taking insights from prior literature, we selected profit margin, current ratio, asset turnover, financial leverage, working capital, inventory turnover, inventory deflated by total assets, sales and change in sales deflated by total assets, sales growth, total assets, CFO, ROA, and market-to-book value as control variables in our regression.

The dependent variable, SR (Stock Return) in the above model is computed by the formula below:

$$SR_t = \frac{\left(P_t + D_t - P_{t-1}\right)}{P_{t-1}} \quad (9)$$

Here P_t and D_t are price and dividend in the current time respectively, whereas P_{t-1} is the price in the previous period.

Regression Models

For determining the effect of Real earnings management and Accrual earnings management on stock return, we estimated several models as proxies of Real earnings management (REM), Accruals earnings management (AEM), and Total earnings management (TEM) with certain control variables and determinants of Stock return. We estimated these models through GMM (Generalized Method of Moments) technique. The rationale behind using GMM is that it gives more robust estimators than any other estimation methods (Ordinary Least square, Maximum Likelihood) because GMM requires less and weakest assumptions of all (Pynnonen, 2007). GMM is used to relax the assumptions of heteroskedasticity and serial correlation. Moreover, GMM is applied when the explanatory variables are not exogenous even after controlling unobserved effects. This method can also be used to obtain estimators

Table 1. Variable Measurement Table

Variable	*Description*
SR_{it}	*Stock return*
SR_{it-1}	*Lagged Stock return* $_{(t-1)}$
REM_{it}	*Proxy for Real earnings management which is a sum of residuals of Sales manipulation, Overproduction, and Discretionary expenses models proposed by Roy Chowdhury (2006)*
AEM_{it}	*Proxy for Accruals earnings management which is a residual of the model proposed by (Dechow et al., 1995; Jones,1991; Kothari et al., 2005) taken as absolute.*
TEM_{it}	*Total earnings management, the sum of REM and AEM*
ATO_{it}	*Asset Turnover*
ROA_{it}	*Return on Asset*
PM_{it}	*Profit Margin*
$INVTO_{it}$	*Inventory Turnover*
MB_{it}	*Market to Book ratio*
CR_{it}	*Current Ratio*
FL_{it}	*Financial Leverage*
INV_{it}	*Inventory as a proportion of total Assets*
S/A_{it}	*Sales over Lagged Total Assets* $_{(t-1)}$
$\Delta S/A_{t-1}$	*Change in sales over lagged total assets*
PM_{it}	*Profit Margin*
SG_{it}	*Sales Growth*
TA_{it-1}	*Total Assets*
WC_{it}	*Working Capital*
$Ln\ (CFO_{it})$	*Natural log of Cash Flow from operations*

Source: Authors' estimate (2020)

that consist of weak distributional assumptions (Wooldridge, 2001). These regression models are as follows:

$$SR_{it} = \beta_0 + \beta_1 SR_{it-1} + \beta_2 REM_{it} + \beta_3 PM_{it} + \beta_4 INVTO_{it} + \beta_5 MB_{it} + \beta_6 CR_{it} + \beta_7 FL_{it} + \beta_8 INV_{it} + \beta_9 ln(CFO)_{it} + \beta_{10} EPS_{it} \quad (10)$$

$$SR_{it} = \beta_0 + \beta_1 SR_{it-1} + \beta_2 AEM_{it} + \beta_3 PM_{it} + \beta_4 INVTO_{it} + \beta_5 MB_{it} + \beta_6 CR_{it} + \beta_7 FL_{it} + \beta_8 ATO_{it} + \beta_9 ln(CFO)_{it} + \beta_{10} SG_{it} + \beta_{11} WC_{it} + \Delta S/A_{(t-1)} \quad (11)$$

$$SR_{it} = \beta_0 + \beta_1 SR_{it-1} + \beta_2 TEM_{it} + \beta_3 INV_{it} + \beta_4 INVTO_{it} + \beta_5 MB_{it} + \beta_6 CR_{it} + \beta_7 FL_{it} + \beta_8 ATO_{it} + \beta_9 ln(CFO)_{it} + \beta_{10} ln(CFO)_{it-1} + \beta_{11} SG_{it} + \beta_{12} WC_{it} \quad (12)$$

The variables' description is given in table 1. We controlled for several variables, which can either affect our proxy variables, are relevant in the earnings management process, or are determinant of stock return. (Al Saedi, 2018; Chalevas & Florou, 2010; Salehi et al., 2018).

Results and Discussion

Descriptive Statistics

Table (2) shows the summary of the descriptive statistics of the variables that we have used to see the effect of real and accrual earnings management on stock return and the control variables over the 13 years for the non-financial, Pakistan stock exchange-listed companies. The median value of firms' stock return (*SR*) is 4.5%, its minimum and maximum percentages are -96% and 21.556% respectively, and the standard deviation of these returns is 1.199%, which suggests that there is very high volatility in stock returns over the sample period. The descriptive statistics for the three proxy variables for real earnings management: Sales Manipulation (*SM*) (lowest (0.0000039) and highest (34.073)), Over Production (*OVP*) (lowest (-2) and highest (1.65)), and Discretionary Expense (*Dexp*) (lowest (0.000023) and highest (2.838)) show that that there is less volatility in sales manipulation as compared to stock returns. However, there is negligible volatility in Overproduction and Discretionary expense values over the sample period. The descriptive statistics of absolute Accrual earnings management (*AEM*),

Table 2. Descriptive Statistics

Stats	*Min.*	*25th percentile*	*Median*	*75th percentile*	*Max.*	*Range*	*Mean*	*SD*
SR	-0.960	-0.243	0.045	0.528	21.556	22.516	0.318	1.199
INV	0.000	0.055	0.166	0.272	0.723	0.723	0.180	0.140
SG	-1.459	-0.057	0.095	0.249	323.172	324.631	0.439	9.531
TA	7.141	13.757	14.818	15.941	20.257	13.116	14.831	1.740
ln (CFO_t)	2.71	11.570	12.910	14.250	19.230	16.600	12.850	2.160
WCL	4.220	11.574	12.931	14.323	19.481	15.262	12.870	2.107
INVTO	-0.014	1.730	3.935	8.209	103.432	103.446	23.794	283.091
MB	-65.301	0.074	0.345	1.041	87.873	153.174	1.084	3.908
CR	0.000	0.758	1.078	1.633	58.519	58.519	1.568	2.443
FL	-85.678	1.530	2.272	3.360	92.507	178.184	2.723	6.546
EPS	-767.324	-0.397	2.797	11.549	828.778	1596.102	9.606	38.234
PM	-453.192	-0.006	0.030	0.083	24.719	477.911	-0.310	9.058
ROA	-7.579	-0.009	0.031	0.092	1.904	9.483	0.035	0.212
ATO	-0.045	0.601	1.074	1.616	23.942	23.987	1.248	1.200
S/A	-0.051	0.580	1.027	1.535	21.062	21.113	1.191	1.144
$\Delta S/A_{t-1}$	-8.384	-0.037	0.075	0.243	8.048	16.432	0.092	0.478
SM	0.0000039	0.041	0.094	0.188	34.073	34.073	0.173	0.825
OVP	-2.008	-0.073	0.030	0.105	1.647	3.655	0.000	0.212
Dexp	0.000023	0.026	0.044	0.065	2.838	2.838	0.075	0.126
REM2	-0.895	0.064	0.166	0.303	34.350	35.245	0.248	0.904
AEM(MJ)	0.000028	0.035	0.079	0.155	34.830	34.830	0.153	0.842
AEM(J)	0.000018	0.035	0.079	0.157	34.842	34.842	0.153	0.841
AEM(K)	0.000002	0.035	0.080	0.156	34.402	34.402	0.156	0.839
TEM a	-0.535	0.120	0.244	0.439	69.180	69.715	0.401	1.768
TEM c	-0.584	0.123	0.244	0.442	68.752	69.336	0.405	1.767
TEM b	-0.534	0.121	0.244	0.440	69.192	69.726	0.401	1.768

Source: Authors' estimate (2020)

that on average the magnitude of discretionary accruals is 0.079 as a proportion of total assets in the three models *(1) AEM(Jones) (2) AEM(Modified Jones), and (3) AEM(Kothari),* and volatility is very high. On the other side, total earnings management (*TEM*) has a median value of 0.244 in all three cases when the proxy variable is (1) *REM* and *AEM(J)* (2) *REM* and *AEM(MJ*), or (3) *REM* and *AEM(K*). Other noteworthy median financial figures are growth in sales (*SG*) of 9.5%, natural log of cash flow from the operation of 12.91 million in the current year (ln(CFO_t)), lagged working capital (WCL_{t-1}) of 12.93 Million, inventory turnover (*INVTO*) of 3.935, market to book ratio(*MB*) of 0.345, current ratio (*CR*) of 1.078, financial leverage (*FL*) of 2.272, earning per share (*EPS*) of 2.797, profit margin (*PM*) of 3%, return on Assets*(ROA*) of 3.1%, asset turnover (*AT*) of 1.074, 1.028 times of sales over assets(*S/A*), and 0.075 times of change in assets over lagged assets. ($\Delta S/A_{t-1}$).

Pearson Correlation Matrix

Table (3) presents the correlation matrix for all the variables that we included in our models mentioned above for the relationship of stock return with REM and AEM. The results suggest that stock return (SR), our variable of interest, is positively correlated with ROA and change in sales over lagged total assets $\Delta S/TA_{t-1}$ at 1% and 5% significance levels, respectively. This significant relationship implies that investors are likely to get returns when the firm reports more earnings and positive change in sales for every unit of the asset. When a firm reports favorable sales and bottom-line figures in comparison to its assets, it sends a positive signal about firms' current and future operations, which ultimately affects its stock price. However, three proxy variables for *TEM, AEM,* and *REM* are negatively correlated with Stock return *SR* at 1% and 5%, respectively. That means stock returns are likely to be affected by real, accrual, and total earning management practices.

Table 3. Pearson Correlation Matrix

	SR	*TEM a*	*TEM b*	*TEM c*	*AEM(J)*	*AEM(K)*	*AEM(MJ)*	*SM*	*OVP*	*ROA*	$\Delta S/A_{(t-1)}$	*INV*
SR	1											
TEM a	-0.08**	1										
TEM b	-0.07**	0.99***	1									
TEM c	-0.08**	1.00***	0.99***	1								
AEM(J)	-0.06*	0.81***	0.80***	0.82***	1							
AEM(K)	-0.05*	0.82***	0.82***	0.82***	0.96***	1						
AEM(MJ)	-0.06*	0.81***	0.79***	0.81***	1.00***	0.96***	1					
SM	-0.06*	0.86***	0.86***	0.86***	0.79***	0.81***	0.79***	1				
OVP	-0.06*	0.50***	0.51***	0.50***	0.08**	0.10***	0.08**	0.14***	1			
Dexp	0.01	0.22***	0.21***	0.22***	0.13***	0.10***	0.12***	0.17***	-0.30***			
ROA	0.07**	-0.19***	-0.20***	-0.19***	0.02	-0.01	0.02	0	-0.40***	1		
$\Delta S/A_{(t-1)}$	0.06*	0.12***	0.11***	0.12***	0.01	0	0.01	0.11***	0.06*	0.07**	1	
INV	0.03	0.12***	0.10***	0.12***	0.03	0	0.03	0.02	0.06*	-0.01	0.14***	1
SG	0	0.08***	0.08**	0.08***	0.10***	0.09***	0.10***	0.04	-0.05	-0.03	-0.10***	-0.04
$TA_{(t-1)}$	-0.06*	-0.09***	-0.09***	-0.09***	-0.06*	-0.07**	-0.06*	-0.04	-0.03	0.27***	-0.04	-0.22***
CFO	-0.01	-0.05	-0.04	-0.05	-0.02	0	-0.02	0.10***	-0.14***	0.19***	-0.01	-0.16***
WCL	-0.05	-0.10***	-0.11***	-0.10***	-0.01	-0.04	-0.01	-0.01	-0.17***	0.36***	-0.02	-0.10***
INVTO	-0.03	0.01	0.01	0.01	0.03	0.03	0.03	0.05	-0.05*	-0.03	0.01	-0.16***
MB	0.04	0.03	0.03	0.03	0.06*	0.04	0.06*	0.14***	-0.25***	0.16***	0.09***	0.10***
CR	0	0.07**	0.07**	0.07**	0.09***	0.09***	0.07***	0.10***	-0.05	-0.04	0.02	-0.11***
FL	-0.02	0.05	0.04	0.05	0.02	0.02	0.02	0.02	0.07**	-0.10***	0.01	0.09***
EPS	0.03	-0.07**	-0.08**	-0.07**	0.01	-0.01	0.01	-0.01	-0.17***	0.30***	0.04	0.07**
PM	-0.05	-0.02	-0.01	-0.02	0.01	0.02	0.01	0	-0.02	0.39***	-0.03	-0.06*
S/A	0.01	0.28***	0.27***	0.27***	0.04	0.03	0.04	0.28***	0.09***	0.09***	0.35***	0.34***
REM	0	-0.13***	-0.11***	-0.13***	-0.26***	-0.22***	-0.26***	-0.25***	0.19***	-0.02	-0.10***	-0.03
ATO	0.01	0.31***	0.30***	0.31***	0.07**	0.06*	0.07**	0.30***	0.10***	0.13***	0.36***	0.35***

* p < 0.05, ** p < 0.01, *** p < 0.001

	SG	*TAt-1*	*CFO*	*WCL*	*INVTO*	*MB*	*CR*	*FL*	*EPS*	*PM*	*S/A*	*REM*	*ATO*
SR													
TEM a													
TEM b													
TEM c													
AEM(J)													
AEM(K)													
AEM(MJ)													
SM													
OVP													
Dexp													
ROA													
$\Delta S/A_{(t-1)}$													
INV													
SG	1												
$TA_{(t-1)}$	0.01	1											
CFO	0	0.33***	1										
WCL	0.01	0.77***	0.30***	1									
INVTO	0.14***	0.08**	0.16***	0.10***	1								
MB	-0.01	-0.01	0.07**	0.07**	0.04	1							
CR	-0.01	-0.12***	0.02	0.12***	0.07**	0.01	1						
FL	-0.01	0.01	-0.03	-0.10***	-0.01	-0.06*	-0.10***	1					
EPS	-0.01	0.18***	0.05*	0.24***	-0.02	0.02	0.01	-0.05*	1				
PM	0	0.15***	0.03	0.12***	0	-0.01	0.03	-0.01	0.05	1			
S/A	0.01	-0.18***	-0.04	-0.05	0	0.24***	0.03	-0.01	0.08**	0.01	1		
REM	0.07**	0.14***	0.14***	0.07**	-0.01	-0.13***	-0.03	-0.01	0	0.03	-0.313***	1	
ATO	0.01	-0.17***	-0.05	-0.04	-0.01	0.25***	0.01	-0.01	0.09***	0.01	0.990***	-0.320***	1

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Authors' estimate (2020)

Moreover, the correlation between other variables shows that three proxy variables of TEM are significantly and positively correlated with proxy variables of *REM* and *AEM*. $\Delta S/TA_{t-1}$, inventory as a proportion of assets (*INV*), sales growth (*SG*), current ratio (*CR*), sales over lagged assets (*S/A*), and asset turnover (*AT*), and negatively and significantly correlated with return on assets (*ROA*), lagged Assets (TA_{t-1}), working capital (*WCL*), earnings per share (*EPS*), and *REM*. Return on Assets (*ROA*), lagged value of total assets (TA_{t-1}), working Capital (*WCL*), earning per share (*EPS*) and cash flow from operation (*CFO*) are significantly and positively correlated with sales manipulation (*SM*), discretionary expense (*Dexp*), and overproduction (*OVP*). Also, three proxy variables of *AEM* are positively and significantly correlated with sales manipulation (*SM*), discretionary expense (*Dexp*), overproduction (*OVP*), sales growth (*SG*), current ratio (*CR*), and asset turnover (*AT*) and negatively correlated with the combined REM and lagged total assets (AT_{t-1}).

Does the Stock Market Recognize Real, Accrual and Total Earnings Management?— Mishkin Test

Following Mishkin (1983) and Sloan (1996), we test whether the stock market is efficient in impounding the information contained in REM, AEM, and TEM for future earnings. First, we estimate the relation between REM and future earnings, AEM and future earnings, and TEM and future earnings. Since the univariate results reveal that, at least partially, the performance consequences of REM, AEM, and TEM materialize in the subsequent year, the analysis focuses on year t+1. Second, the relation between REM, AEM, TEM, and future earnings implicit in security prices is estimated. A comparison of these historical and market-inferred weights using the Mishkin test indicates whether investors correctly identify REM, AEM, and TEM and their importance for future earnings. The earnings forecasting equation in Sloan (1996) is extended to incorporate the implications of REM, AEM, and TEM for future earnings as follows:

Forecasting Equations:

$$EARN_{t+1} = \omega_0+\omega_{1a}TACC_t+\omega_{1b}CFO_t +\omega_2REMn_t+\omega_{2a}CFO_t*REMn_t +\omega_{2b}TACC_t*I_{REMn_t}+\varepsilon_t \quad (13)$$

$$EARN_{t+1} = \omega_0+\omega_{1a}TACC_t+\omega_{1b}CFO_t +\omega_2AEMn_t+\omega_{2a}CFO_t*AEMn_t +\omega_{2b}TACC_t*I_{REMn_t}+\varepsilon_t \quad (14)$$

$$EARN_{t+1} = \omega_0+\omega_{1b}TACC_t+\omega_{1a}CFO_t +\omega_2TEMn_t+\omega_{2a}CFO_t*TEMn_t +\omega_{2b}TACC_t*I_{REMn_t}+\varepsilon_t \quad (15)$$

Return Equations:

$$SAR_{t+1} = \beta_0+\beta_1(Earn_{t+1}-\omega_0-\omega_{1a}TACC_t -\omega_{1b}CFO_t-\omega_2REMn_t -\omega_{2a}CFO_t*REMn_t-\omega_{2b}TACC_t*I_{REMn_t}) +v_{t+1} \quad (16)$$

$$SAR_{t+1} = \beta_0+\beta_1(Earn_{t+1}-\omega_0-\omega_{1a}TACC_t -\omega_{1b}CFO_t-\omega_2AEMn_t -\omega_{2a}CFO_t*AEMn_t-\omega_{2b}TACC_t*I_{AEMn_t}) +v_{t+1} \quad (17)$$

$$SAR_{t+1} = \beta_0+\beta_1(Earn_{t+1}-\omega_0-\omega_{1a}TACC_t -\omega_{1b}CFO_t-\omega_2TEMn_t -\omega_{2a}CFO_t*TEMn_t-\omega_{2b}TACC_t*I_{TEMn_t}) +v_{t+1} \quad (18)$$

Here *AEMn*, *REMn* and *TEMn* are the dummy variables, which take the value of 1 if firm is involved in real, accrual and total earnings management respectively, and 0 otherwise. Equation 13, 14 and 15 are the forecasting equation; the coefficient ω_{1a} and ω_{1b} captures the persistence of cash flows and accruals, respectively, while ω_{2a} (ω_{2b}) captures the differential persistence factor for cash flow (accruals). Equation 16,17, and 18 assume that the market reacts to unexpected earnings conditioned on last year's earnings and estimates the weights that the market assigns to the earning components in fore-

casting future earnings. Comparing coefficients across equations tests whether the market prices cash flows and accrued earnings efficiently or not.

Results of Mishkin Test:

Table 4 reports the results from the Mishkin test of the Real Earning Management model. Panel A reports the results of the Mishkin test for Sales Manipulation, a proxy variable for Real earning management. The coefficient on the SM REM indicator variable is positive, indicating that firms doing sales manipulation are associated with higher future earnings. In contrast, the market perceived weight is negative, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.0087). The differential persistence factor for cash earnings is 0.567 (significant), while the market perceives it to be -1.2333 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of SM. However, the difference is not significant using a one-tail test. However, the market does not efficiently price the accrual component of firms engaging in SM. Taken together, it appears the market underestimates the contribution of SM to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

Panel B of Table 4 reports the results of the Mishkin test for Overproduction, a proxy variable for Real earning management. The coefficient on the OVP indicator variable is negative and significant, indicating that firms doing overproduction are associated with lower future earnings, whereas the market perceived weight is positive and insignificant, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.0178). The differential persistence factor for cash earnings is -0.6881 (significant), while the market perceives it to be 0.2919 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of firms engaging in OVP REM. However, the difference is not significant using a one-tail test.

Similarly, the market does not efficiently price the accrual component of firms engaging in overproduction. Taken together, it appears the market underestimates the contribution of OVP to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

Panel C of Table 4 reports the results of the Mishkin test for Discretionary Expenses, a proxy variable for Real earning management. The coefficient on the DEXP REM indicator variable is negative, indicating that firms doing manipulation in discretionary expenses are associated with lower future earnings. The market perceived weight is also negative, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.1184). The differential persistence factor for cash earnings is 0.0932 (significant), while the market perceives it to be 0.1212 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of SM. However, the difference is not significant using a one-tail test.

Similarly, the market does not efficiently price the accrual component of firms doing manipulation in discretionary expenses. Taken together, it appears the market underestimates the contribution of discretionary expenses to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

Panel D of Table 4 reports the results of the Mishkin test for Real Earning Management as a whole. The coefficient on the REM indicator variable is negative, indicating that firms doing real earning management, are associated with lower future earnings. The market perceived weight is also negative, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.029). The differential

Table 4. The Mishkin Test: Real Earning Management (REM)

	Forecasting Equation		*Return Equation*		*Market Efficiency Test*	
Variable	*Co-efficient*	*z-stat*	*Co-efficient*	*z-stat*	*Chi-square Statistic*	*Marginal Significance Level*
			Panel A: SM REM: I_REM1			
Constant	330,000	1.87	363,000,000	0.09		
$TACC_{(t-1)}$	0.39	10.00	3.57	0.09	0.01	0.94
$CFO_{(t-1)}$	0.11	8.37	1.56	0.09	0.01	0.93
SMD	693,000	2.79	-204,000,000	-0.09	0.01	0.93
$SMD\_CFO_{(t-1)}$	0.57	30.56	-1.23	-0.06	0.01	0.93
$SMD\_TACC_{(t-1)}$	-0.37	-9.44	-3.68	-0.09	0.01	0.93
			Panel B: OVP REM: I_REM2			
Constant	1,020,000	6.01	139,000,000	0.14		
$TACC_{(t-1)}$	0.02	3.21	0.02	0.01	-	1.00
$CFO_{(t-1)}$	0.79	58.35	0.06	0.01	0.01	0.92
OVPD	-742,000	-3.15	59,500,000	0.13	0.02	0.89
$OVPD\_CFO_{(t-1)}$	-0.69	-39.59	0.29	0.03	0.01	0.92
$OVPD\_TACC_{(t-1)}$	0.10	5.35	0.13	0.02	-	1.00
			Panel C: DEXP REM: I_REM3			
Constant	1,570,000	7.03	110,000,000	0.36		
$TACC_{(t-1)}$	0.04	4.66	0.06	0.05	0.00	0.99
$CFO_{(t-1)}$	0.34	25.57	0.18	0.10	0.01	0.93
DEXPD	-813,000	-2.60	-47,500,000	-0.35	0.12	0.73
$DEXPD\_CFO_{(t-1)}$	0.09	3.81	0.12	0.04	0.00	0.99
$DEXPD\_TACC_{(t-1)}$	-0.01	-0.47	-0.02	-0.01	-	1.00
			Panel D: REM			
Constant	1,430,000	6.34	98,400,000	0.33		
$TACC_{(t-1)}$	0.03	3.93	0.07	0.06	0.00	0.97
$CFO_{(t-1)}$	0.43	29.40	0.42	0.20	-	1.00
REMD	-379,000	-1.22	-9,120,000	-0.18	0.03	0.86
$REMD\_CFO_{(t-1)}$	-0.15	-6.51	-0.54	-0.16	0.01	0.91
$REMD\_TACC_{(t-1)}$	0.02	1.49	-0.06	-0.04	0.00	0.96

Source: Authors' estimate (2020)

persistence factor for cash earnings is -0.1462 (significant), while the market perceives it to be -0.5416 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of REM. However, the difference is not significant using a one-tail test.

Similarly, the market does not efficiently price the accrual component of REM. Taken together, it appears the market underestimates the contribution of REM to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings, as seen in the last two columns of panel D in table 1.

Estimation results of the Relationship of Accrual Earnings management with Stock Return by Mishkin Test:

Table 5 reports the results from the Mishkin test of the Accrual Earning Management model. Panel A reports the results of the Mishkin test for the Jones model. The coefficient on the DAJ indicator variable is positive, indicating that firms using jones model for manipulation. Whereas, the market perceived weight is also positive, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is significantly different (chi-square statistic 0.0638). The differential persistence factor for cash earnings is 0.1083 (significant), while the market perceives it to be 0.2737 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of DAJ.

Moreover, the difference is also not significant using a one-tail test. Moreover, the market can inefficiently price the accrual component of firms engaging in Jones model in AEM. It appears that the market underestimates the contribution of DAJ to future earnings. So, the market incorrectly prices the persistence of the cash

Table 5. The Mishkin Test: Accrual Earning Management (AEM)

	Forecasting Equation		*Return Equation*		*Market Efficiency Test*	
Variable	*Co-efficient*	*z-stat*	*Co-efficient*	*z-stat*	*Chi-square Statistic*	*Marginal Significance Level*
			Panel A: DAJ AEM: I_AEM1			
Constant	367,000	1.62	79,100,000	0.35		
$TACC_{(t-1)}$	-0.04	-0.62	1.96	0.21	0.05	0.83
$CFO_{(t-1)}$	0.32	20.70	0.18	0.09	0.00	0.94
DAJD	1,540,000	4.91	16,300,000	0.28	0.06	0.80
$DAJD\_CFO_{(t-1)}$	0.11	4.73	0.27	0.09	0.00	0.96
$DAJD\_TACC_{(t-1)}$	0.07	1.24	-1.95	-0.21	0.05	0.83
			Panel B: DAMJ AEM: I_AEM2			
Constant	367,000	1.62	79,100,000	0.35		
$TACC_{(t-1)}$	-0.04	-0.62	1.96	0.21	0.05	0.83
$CFO_{(t-1)}$	0.32	20.7	0.18	0.09	0.00	0.94
DAMJD	1,540,000	4.91	16,300,000	0.28	0.06	0.8
$DAMJD\_CFO_{(t-1)}$	0.11	4.73	0.27	0.09	0.00	0.96
$DAMJD\_TACC_{(t-1)}$	0.07	1.24	-1.95	-0.21	0.05	0.83
			Panel C: DAK AEM: I_AEM2			
Constant	1,130,000	5.03	82,600,000	0.32		
$TACC_{(t-1)}$	0.36	6.69	1.57	0.18	0.02	0.89
$CFO_{(t-1)}$	0.43	29.00	0.06	0.03	0.02	0.88
DAKD	282,000	0.90	25,600,000	0.28	0.08	0.78
$DAKD\_CFO_{(t-1)}$	-0.12	-5.42	0.52	0.14	0.03	0.87
$DAKD\_TACC_{(t-1)}$	-0.32	-6.03	-1.55	-0.18	0.02	0.89

Source: Authors' estimate (2020)

and accruals components of these earnings.

Panel B of Table 5 reports the results of the Mishkin test for DAMJ. The coefficient on the DAMJ indicator variable is positive and significant, indicating that firms using modified jones model are associated with higher future earnings, whereas the market perceived weight is positive and insignificant, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.0638). The differential persistence factor for cash earnings is 0.1083 (significant), while the market perceives it to be 0.2737 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of firms engaging in modified Jones model AEM. However, the difference is not significant using a one-tail test.

Similarly, the market does not efficiently price the accrual component of firms engaging in the Modified Jones model. Taken together, it appears the market underestimates the contribution of DAMJ to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

Panel C of Table 5 reports the results of the Mishkin test for the Kothari Model, a proxy variable for accrual earning management. The coefficient on the DAK indicator variable is positive, indicating that firms are not doing manipulation through the Kothari model. The market perceived weight is also positive, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.0782). The differential persistence factor for cash earnings is -0.1228 (not significant), while the market perceives it to be 0.5192 (not significant using one tail). The chi-square statistic indicates that the market appears to misestimate the persistence in cash of SM. However, the difference is not significant using a one-tail test.

Similarly, the market does not efficiently price the accrual component of firms doing manipulation through the Kothari model in AEM. Taken together, it appears the market underestimates the contribution of the Kothari model to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

Table 6. Mishkin Test: Total Earning Management (TEM)

	Forecasting Equation		*Return Equation*		*Market Efficiency Test*	
Variable	*Co-efficient*	*z-stat*	*Co-efficient*	*z-stat*	*Chi-square Statistic*	*Marginal Significance Level*
			Panel A: I_TEM			
Constant	720,000	3.18	95,800,000	0.32		
$TACC_{(t-1)}$	0.17	2.86	2.34	0.21	0.04	0.85
$CFO_{(t-1)}$	0.39	22.05	0.37	0.15	-	1.00
TEMD	960,000	3.06	3,060,000	0.07	0.00	0.96
$TEMD\_CFO_{(t-1)}$	-0.03	-1.27	-0.18	-0.05	0.00	0.97
$TEMD\_TACC_{(t-1)}$	-0.14	-2.26	-2.32	-0.21	0.04	0.85
			Panel B: I_TEM1			
Constant	720,000	3.18	95,800,000	0.32		
$TACC_{(t-1)}$	0.17	2.86	2.34	0.21	0.04	0.85
$CFO_{(t-1)}$	0.39	22.05	0.37	0.15	-	1.00
TEM1D	960,000	3.06	3,060,000	0.07	0.00	0.96
$TEM1D\_CFO_{(t-1)}$	-0.03	-1.27	-0.18	-0.05	0.00	0.97
$TEM1D\_TACC_{(t-1)}$	-0.14	-2.26	-2.32	-0.21	0.04	0.85
			Panel C: I_TEM2			
Constant	1,120,000	5.05	89,100,000	0.34		
$TACC_{(t-1)}$	0.50	9.61	1.84	0.23	0.03	0.87
$CFO_{(t-1)}$	0.46	29.27	0.31	0.14	0.00	0.94
TEM2D	243,000	0.79	-437000	-0.01	0.00	0.99
$TEM2D\_CFO_{(t-1)}$	-0.16	-7.30	-0.14	-0.05	0.00	0.99
$TEM2D\_TACC_{(t-1)}$	-0.47	-8.95	-1.82	-0.22	0.03	0.87

Source: Authors' estimate (2020)

Estimation results of the Relationship of Total Earnings management with Stock Return by Mishkin Test:

Table 6 reports the results from the Mishkin test of the Total Earning Management model. Panel A and B report the similar results of the Mishkin test for TEM (REM and AEM with Jones Model) and TEM 1 (REM and AEM with Modified Jones Model). The coefficient on the TEM and TEM 1 indicator variable is positive, indicating that firms are using total earning manipulation. Whereas, the market perceived weight is also positive, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is significantly different (chi-square statistic 0.0021). The differential persistence factor for cash earnings is -0.0296(significant), while the market perceives it to be -0.1761 (not significant using one tail). The chi-square statistic indicates that the market underestimates the persistence in cash of TEM.

Moreover, as the difference is not significant using a one-tail test; hence, the market can efficiently price the components of firms engaging in total earning management and TEM 1. It appears that the market underestimates the contribution of TEM and TEM 1 to future earnings. Hence, the market cannot correctly price the persistence of the cash and accruals components of these earnings.

Panel C of Table 6 reports the results of Mishkin test TEM 2 (REM and AEM With Kothari Model). The coefficient on the TEM 2 indicator variable is positive, indicating that firms doing real earning management and accrual earning management with Kothari model, are associated with higher future earnings. The market perceived weight is also negative, as shown in the return equation. The chi-square statistic indicates that the difference between the forecasting and return equation is not significantly different (chi-square statistic 0.003). The differential persistence factor for cash earnings is -0.1608 (significant), while the market perceives it to be -0.1372 (not significant using one tail). The chi-square statistic indicates that the market appears to estimate the persistence in cash of REM correctly. However, the difference is significant while using a one-tail test.

Similarly, the market cannot efficiently price the accrual component of TEM 2. Taken together, it appears that the market underestimates the

contribution of TEM to future earnings. So, the market incorrectly prices the persistence of the cash and accruals components of these earnings.

The overall results of the Mishkin Test indicate that market is not incorporating proxies of real, accrual and total earning management while forecasting returns. Hence, we concluded that market is not efficient.

Estimation results of the Relationship of Accrual Earnings management with Stock Return ($H_0$1)

Table (7) presents the results of a relation between accrual earnings management (*AEM*) and stock return (*SR*). Three different proxies of accrual earnings management are used to measure this relationship. *AEM(J)* represents Accrual earnings management obtained through the Jones model, *AEM (MJ)* represents accrual earnings management obtained through the Modified Jones model, and *AEM(K)* represents accrual earnings management obtained through Kothari model.

i. Jones Model

Model (1) of Table (7) demonstrates a negative relation between *AEM(J)* and stock returns (*SR*), with an estimator of *-0.396*, which is significant at a 1% significance level. The model is also significant at a 1% significance level with a Chi-Square (χ^2) value of *39.09*. Therefore, we reject our first hypothesis $H_0$1, and this suggests that there is a significant relationship of *AEM* with the Stock return. Moreover, the results show a negative relation of stock return with *ATO* and *INVTO* at 5% and 10% significance level, respectively: a positive relation with *MB and SG* at a 1% significance level.

ii. Modified Jones Model

Model (2) in Table (7) represents a negative relation of Accrual earnings management with stock returns, as the coefficient of *AEM(MJ)* is *-0.408,* which is significant at 1% with a z-value of *(-3.38).* The model is also significant at a 1% significance level with a Chi-Square (χ^2) value of *38.26*. Here again, we reject $H_0$1, despite using a different model. Besides, the stock return has a negative relation with ATO and *INVTO* significant 5% and 10% significance level, respectively: a positive relation with *MB* and SG at a 1% significance level.

iii. Kothari Model

Model (3) of the Table (7) shows the similar negative relation between accrual earnings management *AEM (K)* and stock returns (*SR*), with a coefficient value of *-0.323*, which is significant at 5%. This model is also significant at a 1% level with a Chi-Square (χ^2) value of *33.95*. This model makes our results robust, and therefore we reject $H_0$1 using this model too. However, the stock return has a positive and significant relation with SG and MB at a 1% level and significantly negative relation with *ATO* and *INVTO* at 5% and 10% level, respectively.

Estimation results of the Relationship of Real Earnings management with Stock Return ($H_0$2)

We used sales manipulation, overproduction, and discretionary expense as proxies for real earnings management, similar to prior literature. (Abad et al., 2016; Roy Chowdhury, 2006) Therefore, we examined the individual effect of sales manipulation (*SM*), overproduction (*OVP*), and discretionary expense manipulation (*Dexp)* as well as the combined effect of these variables on Stock return in Table (8).

i. Sales manipulation ($H_0$2a)

Model (1) of the Table (8) shows a significant relation of sales manipulation with stock return. *SM* is positively related to *SR* as the coefficient of *SM* is *0.191,* which is significant at a 5% significance level. The model is also significant at 1% significant level with Chi-Square (χ^2) value of *37.76*. Therefore, we reject the $H_0$2a, and this suggests that there is a significant impact of sales manipulation on stock return. Moreover,

Table 7. Estimation results of the Relationship of Accrual Earnings management with Stock Return

	-1	*-2*	*-3*
	SR	*SR*	*SR*
Abs (AEM(J))	-0.396***		
	(-3.37)		
Abs (AEM (MJ))		-0.408***	
		(-3.38)	
Abs (AEM(K))			-0.323**
			(-2.48)
SG	0.00287***	0.00290***	0.00264***
	-4.22	-4.19	-3.87
Ln (CFO)	-1.02E-09	-5.86E-10	-2.21E-09
	(-0.49)	(-0.37)	(-1.07)
ATO	-0.0457**	-0.0433**	-0.0435**
	(-2.53)	(-2.49)	(-2.52)
WC	-0.041	-0.0372	-0.0306
	(-1.57)	(-1.56)	(-1.20)
PM	-0.0351	-0.0379	-0.0367
	(-1.09)	(-1.19)	(-1.13)
INVTO	-0.000339*	-0.000340*	-0.000356*
	(-1.91)	(-1.94)	(-1.91)
MB	0.0623***	0.0620***	0.0617***
	-4.46	-4.43	-4.45
CR	0.00576	0.00622	0.00555
	-0.79	-0.84	-0.79
FL	-0.00575	-0.00547	-0.00552
	(-0.23)	(-0.23)	(-0.23)
SR_{it-1}	-0.0325	-0.034	-0.0349
	(-1.40)	(-1.47)	(-1.50)
_cons	0.983***	0.932***	0.841**
	-2.66	-2.74	-2.32
N	1584	1584	1584
Chi-Square	39.09	38.26	33.95
P	0.0000512	0.0000708	0.000369

Note: (1) z statistics in parentheses
*(2) ** $p < 0.1$, * $p < 0.05$, *** $p < 0.01$*
(3) abs (AEM(J)) represents the absolute value of accrual earnings management proxy calculated through Jones model, abs (AEM(MJ)) represents the absolute of Accrual earnings management proxy calculated through modified Jones model, and abs (AEM(K)) represents the absolute Accrual earnings management proxy calculated through Kothari model. While SG_{it} is for Sales Growth, PM_{it} for Profit Margin, ATOit for asset Turnover, Ln (CFO) for natural log of Cash Flow from Operations, WC_{it} for working Capital, $INVTO_{it}$ for Inventory Turnover, MB_{it} for Market to Book ratio, CR_{it} for Current Ratio, Fl_{it} for Financial Leverage and SR_{it}-1 for Stock return (t-1).

Source: Authors' estimate (2020)

$\Delta S/A_{(t-1)}$ and *MB* are positively related to stock return and a significant 5% significance level. In contrast, *INVTO* is negatively related to the stock return with a 1% significance level.

ii. Over Production ($H_0$2b)

In Model (2) of the Table (8) the effect of overproduction on Stock Return is shown. The results show a negative relation of overproduction with the stock return, which is significant at a 1% significance level with a coefficient *-0.765*. The model is significant at a 1% significance level with a Chi-Square (χ^2) value of 49.22. Therefore, we reject $H_0$2b. However, $\Delta S/A_{(t-1)}$ is significantly positively related to stock return at a 5% significance level.

iii. Discretionary Expense manipulation ($H_0$2c)

The effect of Discretionary Expense manipulation is shown in the model (3) of the Tatable5). The absolute value of residuals of the discretionary expense manipulation model by Roy Chowdhury (2006) has been used for determining this effect. There is a negative relation of discretionary expense manipulation

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Table 8. Estimation results of the Relationship of Real Earnings management with Stock Return

	-1	*-2*	*-3*	*-4*	*-5*
	SR	*SR*	*SR*	*SR*	*SR*
SM	0.191**			0.0769	
	-2.31			-1.21	
OVP		-0.765***		-0.496**	
		(-3.15)		(-2.38)	
Abs (Dexp)			-0.778*	-0.547**	
			(-1.76)	(-2.05)	
REM					0.0137
					-0.28
Ln (CFO)	-3.97E-09	-1.48E-08	-2.76E-09	-3.04e-09*	-1.67E-09
	(-0.84)	(-1.55)	(-1.52)	(-1.85)	(-0.90)
ROA	0.259	0.212	0.274**		
	-1.46	-1.49	-2.16		
$\Delta S/A_{(t-1)}$	0.195**	0.190**			
	-2.49	-2.57			
S/A	-0.0797		0.0571		
	(-1.38)		-1.06		
EPS	0.00121	0.000559		0.0008	0.00127*
	-1.63	-1.04		-1.4	-1.81
PM	-0.000665	-0.00128	-0.000874	-0.00102	-0.000615
	(-0.83)	(-1.22)	(-0.86)	(-1.06)	(-0.67)
INVTO	-0.000104***	-0.000086	-0.0000885**	-0.0000719**	-0.0000878**
	(-2.64)	(-1.62)	(-1.99)	(-2.02)	(-2.48)
MB	0.0244**	0.0187	0.0421***	0.0284**	0.0323**
	-2	-1.41	-3.14	-2.17	-2.52
CR	0.00535	-0.0039	0.00968	0.00629	0.00844
	-0.58	(-0.32)	-1.06	-0.78	-0.88
FL	0.000327	0.00149	-0.00155	-0.000356	-0.00146
	-0.06	-0.3	(-0.27)	(-0.07)	(-0.26)
INV		0.475		0.930***	0.419
		-1.33		-2.89	-1.29
SRi_{t-1}	-0.0108	-0.0108	-0.0202	-0.0189	-0.0128
	(-0.66)	(-0.71)	(-1.33)	(-1.30)	(-0.83)
_cons	0.392***	0.229***	0.283***	0.189***	0.224***
	-5.75	-3.03	-3.98	-2.89	-3.34
N	2680	2698	2705	2686	2686
Chi-Square	37.76	49.22	23.74	43.58	20.72
P	0.000168	0.00000191	0.00833	0.000018	0.0231

Note: (1) z statistics in parentheses

*(2) ** $p < 0.1$, * $p < 0.05$, *** $p < 0.01$*

(3) SM represents Sales Manipulation, OVP represents overproduction, abs (Dexp) represents the absolute values of Discretionary expenses, and REM represents the sum of SM, OVP ad abs (Dexp). While $S/A(t-1)_{it}$ is for change in sales over lagged total assets, $S/A(t-1)_{it}$ for Sales over Total Assets, EPS_{it} for earnings per share ROA_{it} for Return on Assets, PM_{it} for Profit Margin, ATO_{it} for asset Turnover, Ln (CFO) for natural log of Cash Flow from Operations, WC_{it} for working Capital, $INVTO_{it}$ for Inventory Turnover, MB_{it} for Market to Book ratio, CR_{it} for Current Ratio, Fl_{it} for Financial Leverage, INV_{it} id for inventory as a proportion of total Assets and SR_{it-1} for Stock return(t-1).

Source: Authors' estimate (2020)

(*Dexp*) with Stock return having coefficient and z-statistics *-0.778* and -1.76, respectively. The relationship is significant at the 10% significance level. The model is also significant at a 1% level with a Chi-Square (χ^2) value of *33.6.*

Therefore, we reject $H_0$2c. *ROA* and *MB* are positively related to *SR* with 1% and 5% significance values, respectively, while *INVTO* is negatively related to *SR* at a 5% significance level.

Real Earnings Management ($H_0$2)

For testing this hypothesis, we have used two different models (4 & 5). The model (4) in Tatable5) shows the effect of *SM*, *OVP,* and *Dexp* on stock return. All three variables have been used simultaneously. The results show that *OVP* and *Dexp* are significantly negatively related to stock return at 5% significance level, while *SM* is positively related to stock return, but is not significant. These results are consistent with the study by Li (2010). The model, however, is significant at a 1% significance level. Since the model is significant, we reject the $H_0$2.

The model (5) of the Table (8) shows the relationship of Stock Return with the variable REM, which is the sum of *SM*, *OVP,* and *Dexp*. We found a positive relationship of *REM* with the stock return, which is not significant. However, the model is significant at a 5% significance level with a Chi-Square (χ^2) value of *20.72*. As *REM* is not significant, we fail to reject the hypothesis that there is a significant relationship of *REM* with stock return.

Estimation Results of Relationship between Total Earnings Management and Stock return ($H_0$3)

In $H_0$3, we reflected that there is a significant combined effect of Real Earnings Management (*REM*) and Accruals Earnings management (*AEM*) on stock return (*SR*). In our analysis, we have estimated total earnings management in three ways. In the table below, real earnings management (*REM*) is tested with Jones, Modified Jones, and Kothari models. We used a different model to ensure that our results are robust.

i. REM with AEM (Jones)

Model (1) of Table (9) represents the results of Total earnings management (*TEa*) (Sum of proxies of *REM* and *AEM* (Jones)) and stock return. The results show that there is a negative relation between *TEMa* and *SR*, which is significant at a 5% significance level. The model is also significant at a 1% significance level, as the Chi-Square (χ^2) value is *30.45*; therefore, we reject $H_0$3. These results suggest that an increase in earnings management activities results in a decrease in the stock returns. Moreover, *SG* and *MB* are positively related to stock return at 1% and 5% significance level, respectively, while *INVTO* is negatively related at a 5% significance level.

***ii.* REM with AEM (Modified Jones)**

Model (2) of Table (9) represents the results of Total earnings management (Sum of proxies of REM and AEM (Modified Jones)) and stock return. The results show that total earnings management (*TEM b*) is negatively related to stock return as the estimator is *-0.171*. This relationship is significant at a 5% significance level. The model is also significant at a 1% level with Chi-Square (χ^2) *38.85*. Therefore, the $H_0$3 is rejected again, despite using a different model. However, *SG* and *MB* are positively related to the stock return at 1% and 5% significance level, respectively, while *INVTO* is negatively related at a 5% significance level.

Table 9: Estimation Results of Relationship of Total Earnings Management with Stock return

iii. REM with AEM (Kothari)

Model (3) of Table (9) represents the results of Total earnings management (*TEM c*) (Sum of proxies of REM and AEM (Kothari)) and stock return. This model again shows a similar result and make our results robust. The coefficient of *TEM c* is *-0.125,* which is significant at a 10% significance level. Like other models, this model is also significant at 1% with Chi-Square (χ^2) value *34.88*. Here we again reject the $H_0$3. These results suggest that real earnings management (REM) and accrual earnings management (AEM) jointly affect the stock return.

Conclusion

This paper examines the effect on the stock return due to earnings management. More specifically, the individual and the combined ef-

fects of Real earnings management (REM) and Accruals earnings management (AEM). For measuring AEM, we used three models: (1) Jones (*1991*), (2) Modified Jones (*1995*), and (3) Kothari (*2005*). Our results demonstrate that a significant and negative relationship lies between accrual earnings management (*AEM*) and stock return (*SR*). We got the same results from all three AEM models, which makes our results robust. These results are consistent with the study conducted by Chan et al. (2006) in the United States. However, our results are not consistent with the study of Al Saedi (2018), in which he found no significant relation between *accrual earnings management* and *stock return*.

REM measuring variables of overproduction (*OVP*) and discretionary expenses (*Dexp*) are significantly negatively associated with the stock return, while sales manipulation (*SM*) is significantly positively related to the stock return when regressed individually. Nevertheless, when they are combined, *OVP* and *Dexp* were significant, but *SM* was not. A study conducted by Li (2010) shows similar results that the stock return underperforms when managers are involved in real activity manipulation through overproduction and discretionary expense manipulations. Moreover, we also estimated the results of REM, which is a sum of SM, OVP, and Dexp. *REM* shows a positive but insignificant association with the stock return. For total earnings management, our results demonstrated that there is a joint effect of *REM* and *AEM* on the stock return, and these results are robust as we used different models to test this relationship. This relationship states that Stock returns underperform when managers are involved in accrual-based earnings management and real activity manipulation.

Further, we performed the Mishkin test to analyze whether the stock market is efficient or not, and we concluded that the market is inefficient. The study of Shu, Chiang, and Lin (2012) support our result. They conducted a study on the Taiwan stock exchange, reflecting that earnings management affects the stock return during the IPO valuation. However, the success of earnings management depends upon market conditions because earnings managements combined with other determinants of stock returns affects the stock returns (Botsari & Meeks, 2018).

Implication

Our results have substantial implications for the stockholders of Pakistani listed companies and for those who trade these stocks such as dealers, brokers, and many others, in making decisions about the stock selection and investment decisions. They would be concerned about whether the reported earnings figures are depicting the real picture of the company's operations or just some manipulations in the financial statement or real activities. If the stockholders and traders have discovered that the reported earnings do not mirror the actual performance of the company, they would then be able to search for those areas the managers could have used to manipulate the reported earnings and consequently take further actions. Furthermore, it is less difficult to detect accrual earning management in comparison to real earning management. However, real earning management can have as much effect on investor's earning as accrual earning management. Therefore, investors need to be cautious while taking decisions by considering both aspects of earning management.

Limitations

This study has some limitations, which may provide clarity to understand the study better and lead to some directions. Firstly, many variables of earning quality cause volatility in stock return. There may be other reasons, which could affect stock return, such as information asymmetry/uncertainty, the macro environment of firms and different settings of different industries (Kim & Qi, 2010). As one of the studies by (Figelman (2019)) suggests that momentum in stock return is driven by slow reaction to the news and the effect of response on stock return varies with large capitalized or small capitalized companies. We tried our best to control these variables, but to some extent, they can still affect our findings. Secondly, there are sev-

eral different models used in different research. These models could result in varying results, and much future research could be conducted on different models. Thirdly, there are 450 non-financial companies which are listed on the Pakistan stock exchange, but we could find data of only 300 companies, so our results could vary with different sample sizes which open the window of opportunity for future research.

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