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# Earnings Management, Uncertainty and the Role of Conservative Financial Reporting: Empirical Evidence from Pakistan

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## Abstract

This study examines whether accounting conservatism can support real earnings management by reducing accrual earnings management techniques. The net impact of conservative reporting on earnings management is also analyzed. It is assumed that moderating the role of conservative financial reporting during uncertainty can mitigate earnings management practices. For our analysis, 5354 firm-year observations for the period 2007–2020 of nonfinancial companies listed on the Pakistan Stock Exchange are applied. To measure conservatism in the non-financial sector of Pakistan, Khan and Watts' (2009) model is used to provide evidence that conservatism is a way to restrict earnings management during uncertainty. "Prospector" and "Defender" Business strategy is applied for measuring firm-level uncertainty. To measure accrual earnings management Modified Jones (1995) model and Dechow and Dichev (2002) approach and Kasznik (1999) model are applied, and for real earnings management Roychowdhury model is applied which follows three approaches to measure real earnings management i.e. cash flow manipulation, Overproduction, and discretionary expenses. The estimations support our hypothesis by providing statistically significant proof that conservative financial reporting in a developing economy like Pakistan may be used to overcome the net impact of earnings management during uncertainty. Our results provide critical and practical implications for investors, researchers, and standard setters.

**Keywords:** Earnings Management, Accounting Conservatism, Uncertainty

**JEL Classification Code:** M00, M40, M51

## 1. Introduction

Literature has documented the effect of macro-level uncertainty on economic growth, business cycle, and investment (Bloom et al., 2018; Basu & Bundick, 2017; Bachmann & Bayer, 2014). Although both macro and firm-level uncertainty impact the managerial decisions, including financial reporting, investment, hiring, and advertising (Stein & Stone, 2013; Arif et al., 2016; Gulen & Ion, 2015),

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The opportunistic decisions by management could create a moral hazard as shareholders have limited information. Such opportunistic behaviors could be controlled through accounting standards (Commerford et al., 2018). One such accounting standard is accounting conservatism. According to Guay and Verrecchia (2006), conservatism reduces opportunities for earnings management due to timely recognition of losses and delays the recognition of profits. It also decreases opportunistic financial reporting behavior opportunities by reducing moral hazard and adverse selection issues between management, investors, and lenders (Watts, 2003; Watts & Zimmerman, 1978; Kim et al., 2015; Wang, 2018).

This study examines the impact of firm-level uncertainty on managerial decision-making, i.e., reporting and management of earnings, and the role of accounting conservatism to put limits on earnings management during micro-level uncertainty. The rationale for conducting this research work for Pakistan is that it is an emerging economy with a lower saving rate (13.5 percent), higher macro and micro-level uncertainty,

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and weak investors' protection. The prevalence of Earnings Management could erode the investors' confidence. According to Pakistan's Economic Survey (2018–2019), the country's investment has dropped from 10.3 to 9%. The only way to gain investor confidence and attract investment is to present fair and unbiased financial information by applying accounting rules like conservatism for reporting (Hsieh et al., 2019). This unique context justifies the need for the research and could contribute to policymaking. This study contributes to literature for earnings management during uncertainty and accounting conservatism. Conservative financial reporting could offer an alternate explanation of accounting conservatism as a rational way to solve business uncertainty. It contributes to literature related to accounting conservatism as previous work provides contrasting answers to conservatism (Ball, 2001; Ball & Shivakumar, 2006; Watts, 2003). This work also contributes to the accounting literature by analyzing the relationship between financial reporting and business strategy and EM (Bentley et al., 2014). Limited research explores EM, firm-level uncertainty, and conservative financial reporting though individual studies take one of these variables. Our novel idea is to study these variables in combined form to analyze the relationship between earnings management, firm-level uncertainty, and the role of conservative financial reporting. Moreover, our study also offers contextual novelty as earlier are conducted in different contexts and frameworks.

Modified Jones model (Dechow et al., 1995) and Dechow and Dichev (2002) and Kasznik (1999) models were used to estimate earnings management. Management literature documents that firms with varied business strategies face different levels of uncertainty (Miller & Friesen, 1982; Miles & Snow, 2007). A dichotomous measure based on business strategy is applied in accounting literature as a proxy for uncertainty (Hsieh et al., 2019). This strategy identifies firms as a prospector or as a defender. **"Prospectors"** are those companies that actively look for new business opportunities by focusing on innovation and investing substantially in R&D, while **"Defenders"** are those firms whose goal is an efficient provision of current products and to develop expertise in a very narrow area. Prospector firms face a higher level of uncertainty than defenders, and the Khan and Watts (2009) model is applied to measure accounting conservatism. Following the literature, we analyzed (i) a link between earnings management and firm-level uncertainty, (ii) the association between accounting conservatism and earnings management, (iii) the impact of accounting conservatism on earnings management during firm-level uncertainty.

## 2. Literature Review

Schipper (1989) defined EM as an interposition by management to obtain personal benefits. Literature documents that managerial decision-making related to reporting earnings under uncertainty is different from decision-making under risk (Heinsalu, 2011). In risk, the potential consequences are known initially, whereas, for uncertainty, the possibility of all outcomes is unknown. Knight (1921) suggested that risk is different from uncertainty. The critical difference is that the decision-making process is different under risk and uncertainty. For risk, the decision-maker has maximum information about all possible outcomes, which facilitates taking the best solution, while for uncertainty, there is a lack of information. According to (Miles & Snow, 2007), firms that adopt different business strategies face different levels of uncertainty. Literature documents that innovative firms (prospectors) engage more in EM than non-innovative (defenders) firms. Prospectors or innovative firms may need more funds for new projects. The requirement of such capital puts a burden on management for EM to meet analysts' requirements (Fuller & Jensen, 2002; Osma & Young, 2009). Recently Bens et al. (2018) and Hansen et al. (2018) reported a positive link between EM and companies involved in R&D.

This paper analyzes earnings management for prospector firms in line with these studies. However, this stream of literature is not without controversy as a few studies show opposite results by concluding that prospectors have lesser chances to be involved in EM because prospector firms are in the startup phase and have a minimal emphasis on profit. Second, A study by Bermpei et al. (2019) explored the impact of economic policy uncertainty on reporting quality from US companies and reported a positive and significant impact of economic uncertainty on Accrual Earning Management (AccEM). Another study by Dhole et al. (2021) reported a significant positive effect of uncertainty on EM. They analyzed the relationship between economic uncertainty and financial reporting comparability and concluded that EM and cash flow variability increases during uncertain times. Li (2018) studied the impact of EM on investment during uncertain times and stated that the relationship between EM and investment is weak due to uncertainty. Yang and Chen (2021) studied macro-level uncertainty with cyclicality. They concluded that during uncertainty, EM practices are high due to cyclicality. Similar results are reported by El Ghoul et al. (2021). By following the above-cited literature, we develop a hypothesis (H1) for prospectors as stated below:

*H1: There is a positive and significant association between earnings management and firm-level uncertainty for prospector firms.*

Few research works have observed the link between conservative accounting and EM. A question related to conservative accounting and EM is how accounting conservatism affects earnings management (Ruch &

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Taylor, 2015). Conservatism in accounting is the tendency of an accountant to report a high degree of verification of good news. Conservatism does not arise due to accounting standards, but it is also due to incentives for management to postpone bad news later. Since accounting conservatism attracted several researchers at the earlier level of accounting theory, however, there are a diversified number of opinions about conservatism even today. Many prominent researchers, including Hatfield and Paton, criticized accounting conservatism (Chatfield, 1996). Some of the views are against conservatism because: 1) conservatism does not show consistency as it shows a higher level of income in one period. In another, it offers a decrease in income 2). Along with other problems, arbitrary conservatism gives managers too much power (Goh & Li, 2011; Owais, 2021).

According to Lara et al. (2012), high conservative companies are less involved in EM in the US and reported a negative link between EM and accounting conservatism. Likewise, Chen et al. (2007) analyzed accounting conservatism and EM and reported a negative link between conservatism and discretionary earnings management. Haque et al. (2016) investigated nonfinancial firms listed on (PSX) for 1999–2013 and reported a negative association between conservative reporting and EM. Lobo et al. (2019), Kwon et al. (2006) show a positive relationship between conservatism and EM. Kwon et al. (2006) also reported a positive link between EM and conservatism. Williams (2014) proved that conservatism results in a decrease in earnings management and debt renegotiation inefficiency.

Studies by Bens et al. (2018) and Hansen et al. (2018) showed a negative association between accounting conservatism and accrual-based earnings management and a positive association between conservatism and real-based earning management. Feliana and Bagus (2020) studied the relationship between conservatism and EM after adapting IFRS in Indonesian and concluded that the application of IFRS does not have any impact on conservatism, and the implication of IFRS also does not have any effect on the relation between EM and conservatism. Krismiaji and Astuti (2020) showed a positive association between conservatism and EM by taking a sample of Indonesian companies. Lara et al. (2012, 2020) conducted this research by taking a piece of US firms from 1991 to 2010. A similar study was conducted by Li (2018) who reported the positive impact of unconditional conservatism on real earnings management.

This study expects that higher conservatism is linked to

 (i) decrease in accrual-based earnings management, but also to
(ii) increase in real earnings management.

This predicted trade-off between accruals- and real-earnings management raises the net impact of accounting conservatism on the aggregate level of earnings management.

Based on the above-mixed findings following hypotheses are formulated.

*H2: There is a negative association between conservative financial reporting and accrual earnings management.*

*H2a: There is a positive association between conservative financial reporting and real earnings management*

*H2b: There is a negative association between conservative financial reporting and earnings management.*

*H3: There is a negative association between conservative financial reporting and earnings management during uncertainty for prospectors.*

## 3. Data and Methodology

### 3.1. Data

The data set of this study consists of 557 listed companies of the Pakistan Stock Exchange (PSX) over 2007–2020. The focal point of the study is nonfinancial listed companies, as the financial sector work under a different regulatory environment, and estimation of earning management for financial companies is challenging (Tsipouridou & Spathis, 2012). The companies that did not remain operational throughout the study were excluded. Only those companies are selected which have financial data available for all variables. After applying these filtration techniques, the initial sample has 394 nonfinancial companies from 14 different industries from 2007–to 2020 with 5670 firm-year observations.

### 3.2. Empirical Model

Healy and Wahlen (1999) stated that accounting earnings are the most common and critical reported figures related to a firm's performance. The literature documents two different approaches to measuring earnings management (EM) and the current study uses these as given below.

1. Accrual earnings management (AccEM)
2. Real earnings management (ReEM)

### 3.2.1. Accrual Earnings Management (AccEM)

To test our hypothesis, we used three different models to calculate AccEM 1) Modified Jones (1991) model, 2) Kasznik (1999) model, and 3) Dechow and Dichev (2002).

### Modified Jones model (Dechow et al., 1995)

Modified Jones model (Dechow et al., 1995) disintegrates accruals as discretionary and nondiscretionary parts. Dechow et al. (1995) suggested this method after adjusting for sales and receivable changes. This model reduces errors for measurement related to discretionary accruals. Following the Kothari et al. (2005), Kyaw et al. (2017), Collins et al. (2017), and Kothari et al. (2016) ROA and growth in sales are used as additional explanatory variables to control the effect of performance and firm growth.

$$\text{AccEM1: } TA_{it} = \alpha_0 + \alpha_1(\Delta Sales_{it} - \Delta REC_{it}) + \alpha_2 \Delta PPE_{it} + \varepsilon_{it} \tag{1}$$

### Kasznik (1999) model

Kasznik's (1999) model is applied to calculate AccEM as, according to Nazir et al. (2018) and Black et al. (2018), this is the best model to identify Accrual earnings management (AccEM) practices among firms listed on PSX. This model is as below

$$\text{AccEM2: } TA_{it} = \partial_0(1/Asset_{t-1}) + \partial_1(\Delta REV_{it} - \Delta REC_t) + \partial_2(\Delta PPE_{it}) + \partial_3(OCF_{it}) + \varepsilon_{it} \tag{2}$$

### Dechow and Dichev (2002) approach

Another method to calculate accruals earning management (AccEM3) is Dechow and Dichev (2002) approach. It is applied as this measure is a function of past, present, and future cash flows given their purpose to alter the timing of cash flow recognition in earnings

$$\text{AccEM3: } \Delta wc = \partial_0 + \partial_1 CFO_{t-1} + \partial_2 CFO_t + \partial_3 CFO_{t+1} + \varepsilon_{it} \tag{3}$$

Where $TA_{it}$ is the total assets, $\Delta$Sales is the change in sales, $\Delta$REC is the change in accounts receivable, $PPE_{it}$ is the gross property, plant, and equipment, and $\Delta PPE_{it}$ is change in $PPE_{it}$. $\Delta REV_{it}$ is a change in accounts receivable, $\Delta OCF_{it}$ is the change in operating cash flow. $\Delta wc = w_{t-1} + \partial_t$ and $\Delta wc = \Delta AR + \Delta INV - AP - \Delta TP + \Delta$ Other assets. $\Delta wc$ is changing in working capital, $\Delta AR$ is changing in accounts receivable, $\Delta AP$ changes in accounts payable, $\Delta TP$ is changing in taxes payable. $CFO_t$ is operating cash flow, and $CFO_{t+1}$ is one period ahead value.

### 3.2.2. Real Earnings Management (ReEM)

Roychowdhury (2006) proposed three methods of real manipulation cash flow manipulation, Overproduction, and discretionary expenses. We employ three proxies to measure the level of real earnings management i.e., ReEM1, ReEM2, ReEM3 (Roychowdhury 2006, Cohen et al., 2008; Cohen & Zarowin, 2010; Dechow et al., 2010).

Our first measure of real earnings management (ReEM1) is as given below:

$$\text{ReEM1: } \frac{ROPCF_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_2\left(\frac{sales_{i,t}}{A_{i,t-1}}\right) + \beta3\left(\frac{\Delta sales_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{4}$$

Our second measure of real earnings management (ReEM1) is as given below:

$$\text{ReEM2: } \frac{RProd_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_2\left(\frac{sales_{i,t}}{A_{i,t-1}}\right) + \beta_3\left(\frac{\Delta sales_{i,t}}{A_{i,t-1}}\right) + \beta_4\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{5}$$

Our third measure of real earnings management (ReEM3) is as given below:

$$\text{ReEM3: } RDIS_{it}/A_{it-1} = \beta_0 + \beta_1\left(1/A_{it-1}\right) + \beta_2\left(S_{it-1}/A_{t-1}\right) + \varepsilon_{it} \tag{6}$$

Where the subscript "$i$" is for the firm and "$t$" is for the time period. $ROPCF_{it}$ is operating cash flow, $Sales_{it}$ is the natural log of the sales, $\Delta Sales_{it}$ is the change in sales $(S_{it} - S_{it-1})$, $S_{it-1}$ are the lagged sales, $A_{it-1}$ is the lagged value of total assets $(A_{it})$. $RProd_{i,t} = COGS_{it} + \Delta Inventories_{it}$, $COGS_{it} =$ cost of goods sold, $\Delta Inventories_{it} = (Inventories_{it} - Inventories_{it-1})$ is chage in invetories. $RDIS_{it} = R\&DE_{it} + S\&AE_{it} + ADVE_{it}$, $=$ research & development expense, $S\&AE_{it} =$ sales and general administrative expenses, $ADVE_{it} =$ advertising expenses.

### 3.2.3. Uncertainty (Uncer)

According to finance literature, Miller and Friesen (1982); firms that adopt different/business strategies face different levels of uncertainty. This paper applies Bentley et al.'s (2013) business strategy as a dichotomous empirical measure of uncertainty. This strategy is based on the earlier work of Ittner et al. (1997). The rationale of applying Bentley et al.'s (2013) business strategy as a proxy of uncertainty is based on publicly disclosed accounting information. This strategy identifies firms as a prospector or as a defender. This applies to Ittner et al. (1997) business strategy score as uncertainty proxy. A business strategy score is a sum of six variables calculated as an average of a rolling five-year window. These six variables (see Appendix) are computed

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for firm-year and then ranked into quintiles for each year and sector. The business strategy is calculated as the sum of all six variables, with a maximum value of 30 and a minimum value of 6. The higher score represents prospector-oriented strategy, and the lower score means defender-type strategy. Further, a dummy variable is created equal to 1 if the score is higher than 18 and represents prospector firm and 0 otherwise.

### 3.2.4. Accounting Conservatism Khan and Watts (2009) Model (C-score and G-score)

Following Khan and Watts (2009) to estimate conservative reporting as this approach allows to calculate a firm-year estimation. Khan and Watts' (2009) C-Score is a firm-year form of Basu's (1997) method. Khan and Watts (2009) begin with Basu's equation (1) and then put the good and bad news with three attributes of firms. this study applies the Khan and Watts (2009) approach that is based on the actual model of the Basu (1997) model.

$$E_{it}/P_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it}R + \varepsilon_{it} \quad (7)$$

Where: $E_{it}/P_{it}$ = Earnings per share scaled by the share price at the beginning of the period, $D_{it}$ = Indicator variable that takes a value of one if $R_{it}$ is negative and zero otherwise, $R_{it}$ Rate of return (cumulative, 12 months), $\beta_2$ represents timeliness measurement for good news and $\beta_3$ represent the measurement of bad news timeliness. Khan and Watts (2009) referred to good news timelines as G_Score and bad news timelines measurement as C_Score.

$$G\_Score = \beta_2 = \mu_{1t} + \mu_{2t}SIZE_{it} + \mu_{3t}MktB_{it} + \mu_{4t}LEV_{it} \quad (i)$$

$$C\_Score = \beta_3 = \lambda_{1t} + \lambda_{2t}SIZE_{it} + \lambda_{3t}MktB_{it} + \lambda_{4t}LEV_{it} \quad (ii)$$

Size is natural the log of Total Assets, MktB for the market to book ratio estimated as equity market value divided by equity book value, and LEV is leverage and calculated as total debts (long term + short term) divided by total assets. Equations (i) and (ii) are firm-year timelines estimations of G_Score and C_Score, and these are not regression models; we put these values in equation (1) to estimate the annual cross-sectional regression model. The following yearly cross-sectional model is used to estimate bad news timelines (C_Score) and good news timelines (G_Score).

$$\begin{aligned} E_{it}/P_{it} = &\beta_0 + \beta_2 D_i + R_i(\mu_1 + \mu_2 Size_i + \mu_3 MktB_i \\ &+ \mu_{4t}Lev_i) + D_i R_i(\lambda_1 + \lambda_2 Size_i \\ &+ \lambda_{3t}MktB_i + \lambda_{4t}Lev_i) + \delta_1 Size_i \\ &+ \delta_2 MktB_i + \delta_3 Lev_i + \delta_4 D_i Size_i \\ &+ \delta_5 D_i MktB_i + \delta_6 D_i Lev_i + \varepsilon_{it} \end{aligned} \quad (8)$$

### 3.3. Econometric Specification

The current study measures accrual earnings management (AccEM) by using three different models, $AccEM1_{it}$, $AccEM2_{it}$, and $AccEM3_{it}$ givne by Eq (1), Eq (2) and Eq (3). The real earnings management (ReEM) is also measured by using three models $ReEM1_{it}$, $ReEM2_{it}$, and $ReEM3_{it}$ given by Eq (4), Eq (5), and Eq (6). In order the test the significance of uncertainty (Uncer) on earnings management (EM) we use the following econometric specification.

Econometric specifications for accrual earning management.

$$\begin{aligned} AccEM1_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (9)$$

$$\begin{aligned} AccEM2_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (10)$$

$$\begin{aligned} AccEM3_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (11)$$

Econometric specifications for real earning management.

$$\begin{aligned} ReEM1_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (12)$$

$$\begin{aligned} ReEM2_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (13)$$

$$\begin{aligned} ReEM3_{it} = &\beta_0 + \beta_1 Uncer_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (14)$$

In the above equations $Uncer_{it} = 1$ if a firm is prospector and $Uncer_{it} = 0$ otherwise. $Control_{it}$ is a set of variables like Size, LEV, MktB to control for the company's growth. The firm's performance is measured by ROA. Cycle measured by receivables in days plus inventories in days less payable in days, all at the start of the year longer the firm operating cycle more chance to manage earnings measured by Dechow (1994).

To test hypothesis 2, the impact of accounting conservatism (AcctConv) on AccEM and REM following model has been applied. At this second stage, the following model has been estimated to analyze the comprehensive relationship of conservatism and earnings management (accrual & Real).

$$\begin{aligned} AccEM1_{it} = &\beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FEs + \varepsilon_{it} \end{aligned} \quad (15)$$

$$\begin{aligned} AccEM2_{it} = &\beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ &+ Indust\_FE + Year\_FE + \varepsilon_{it} \end{aligned} \quad (16)$$

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$$AccEM3_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ + Indust\_FE + Year\_FE + \varepsilon_{it} \quad (17)$$

$$ReEM1_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ + Indust\_FE + Year\_FE + \varepsilon_{it} \quad (18)$$

$$ReEM2_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ + Indust\_FE + Year\_FE + \varepsilon_{it} \quad (19)$$

$$ReEM3_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ + Indust\_FE + Year\_FE + \varepsilon_{it} \quad (20)$$

$$Suspect_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 \Sigma Control_{it} \\ + Indust\_FE + Year\_FE + \varepsilon_{it} \quad (21)$$

Finally, hypothesis 3, analyzes the relationship between uncertainty and EM and accounting conservatism's moderating role in reducing earnings management. For this purpose, following the regression equation is used:

$$Suspect_{it} = \beta_0 + \beta_1 AcctConv_{it} + \beta_2 Uncer_{it} \\ + \beta_3 AcctConv_{it} * Uncer_{it} \\ + \beta_4 \Sigma Control_{it} + Industry\_FE \\ + Year\_FE + \varepsilon_{it} \quad (22)$$

## 4. Empirical Results and Discussion

At the first stage, to analyze H1, the impact of uncertainty on earnings management (accrual and real type of earnings management), this study employed 218 nonfinancial firms listed on PSX from 2007–2020. Empirical results are reported in Table 1 where col (1) reports regression output with book value accounting measures, and col (2) includes market

measure variables where M1 is for the modified model, M2 is for Kasznik (1999) model and M3 is for Dechow and Dichev (2002) approach. The uncertainty (Uncer) variable is calculated by applying the Bentley et al. (2013) approach. Accrual earnings management (AccEM) shows a positive and significant link with uncertainty 0.05 and 0.01 significance level respectively for all accrual's models M1, M2, and M3, which supports our first hypothesis that is there is a positive and significant association between AEM and uncertainty. ReEM models which support hypothesis 1 indicate that firms facing uncertainty have greater chances to engage in AccEM.

In Table 2, ReEM is estimated by following Roychowdhury (2006) approach. This approach employed three measures for ReEM, the Operating Cash Flow method (REM1), Overproduction (REM2), discretionary expense (REM3).

Table 3 reports the result of real earnings management and uncertainty. As supported by previous studies, results in Table 3 support our hypothesis 1 by endorsing that firms engage in real earnings management practices during uncertainty (Chen et al., 2015; Stein &Wang, 2016). The significance level is 0.01, 0.05, and 0.01 for ReEM1, ReEM2 and ReEM3 respectively. ReEM models that support H1 indicate that firms facing uncertainty have greater chances of engaging in ReEM.

At the second stage, hypothesis 2 is analyzed, i.e., the effect of accounting conservatism on earnings management. In our econometric model, there can be endogeneity issues since it is not clear whether the causality originates from independent to dependent variable or the other way around. To address this issue, we apply the "Arellano-Bover/ Blundell-Bond linear dynamic panel data estimation," an estimation technique with system GMM. This technique incorporates the lagged values of the dependent variable

**Table 1:** Accrual Earnings Management and Uncertainty

| | AccEM1 | | AccEM2 | | AccEM3 | |
|---|---|---|---|---|---|---|
| | **Col(1)** | **Col(2)** | **Col(1)** | **Col(2)** | **Col(1)** | **Col(2)** |
| $Uncer_{it}$ | 0.489*** (0.038) | 0.134** (0.171) | 0.110** (0.012) | 0.063*** (1.24) | 0.130*** (0.080) | 0.021** (0.078) |
| $ROA_{it}$ | −0.133*** (0.001) | −0.382*** (0.005) | 0.231*** (0.203) | −0.030*** (0.24) | −0.051*** (0.006) | −0.162*** (0.073) |
| $Size_{it}$ | −0.136 (0.150) | −0.264*** (0.532) | 1.24*** (0.575) | −0.010*** (0.82) | −3.542*** (0.678) | −0.634** (0.368) |
| $Cycle_{it}$ | 0.674*** (0.024) | 0.005 (0.0156) | 0.543 (0.544) | −0.0545*** (0.322) | 0.180 (0.014) | 0.929*** (0.007) |
| $PrtB_{it}$ | | 0.733*** (0.091) | | −0.020 (−0.56) | | −0.433*** (0.020) |
| $MktLev_{it}$ | | 0.790*** (0.054) | | −0.098*** (−0.23) | | 0.172*** (0.262) |
| $MktShare_{it}$ | | −0.007** (0.035) | | 0.563 (−01.78) | | −0.149* (0.144) |
| $MktCap_{it}$ | | 0.004* (0.012) | | −0.155 (−0.321) | | −0.002** (0.006) |

Terms in parenthesis are the robust standard errors, ***,**, and * are indicate significant at 1%, 5%, and 10% level of significance.

**Table 2:** Real Earnings Management and Uncertainty

|  | ReEM1 | | ReEM2 | | ReEM3 | |
|---|---|---|---|---|---|---|
|  | Col(1) | Col(2) | Col(1) | Col(2) | Col(1) | Col(2) |
| $Uncer_{it}$ | 0.951*** (0.438) | 0.367** (0.377) | 0.240** (0.450) | 2.63 (0.454) | 0.234*** (0.560) | 0.664*** (0.045) |
| $ROA_{it}$ | −0.653*** (0.651) | −0.562*** (0.241) | −0.671*** (0.036) | 0.056*** (0.684) | −0.878*** (0.466) | −0.352*** (0.462) |
| $Size_{it}$ | 0.096 (0.240) | 0.234*** (0.462) | 4.462*** (0.358) | 0.466 (0.845) | 3.35*** (0.656) | 0.253 (0.356) |
| $Cycle_{it}$ | 0.681*** (0.434) | 0.071 (0.056) | 0.135 (0.664 ) | −0.456*** (0.421) | 0.350 (0.0646) | 0.245*** (0.085) |
| $PrtB_{it}$ |  | 0.463*** (0.046) |  | −0.434** (1.353) |  | −0.654*** (0.253) |
| $MktLev_{it}$ |  | 0.734*** (0.056) |  | 0.335* (0.372) |  | 0.735*** (0.672) |
| $MktShare_{it}$ |  | −0.067 (0.033) |  | 0.245 (0.458) |  | −0.649 (0.157) |
| $MktCap_{it}$ |  | 0.065 (0.491) |  | −0.434 (0.455) |  | 0.098 (0.564) |

Terms in parenthesis are the robust standard errors, ***, **, and * are indicate significant at 1%, 5%, and 10% level of significance.

as instruments in the level equation and resolves the misspecification problem. The validity of instruments is indicated by AR(1) and AR(2) and Hansen test, two serial correlation tests. Also, to study the net result of conditional conservatism on EM logit model is applied after identifying suspect firms (i.e., who are having chances to involve in EM of either type) and non-suspect firms (i.e., having lesser opportunities to engage in EM of either type). The logit model is applied as the dependent variable is binary. According to literature, logit is the best model when the dependent variable has binary values, i.e., 0 or 1.

Results of hypotheses 2 are reported in table 5 col (1) reports regression output with book value accounting measures, and col (2) includes market measure variables in addition to book value accounting measures col (3) is reporting results from GMM. M1 is for the modified model, M2 is for Kasznik (1999), M3 is for the Dechow and Dichev (2002) approach. Accounting conservatism is measured by Khan and Watt's (2009) model. Specifically, we find that conservatism is related to a lower level of accruals, as measured by our Modified Jones (1995) model (AcctConv = −0.02) and Dechow and Dichev(2002) approach (AcctConv = −0.32) earnings management proxies, indicating that conditional accounting conservatism facilitates to reduce earnings management by 2% in M1 and by 8% in M2 and by 3% in M3. The explanatory variables are statistically significant and have signs as predicted.

The relationship between ReEM and accounting conservatism (AccConv) is also analyzed. Where ReEM

is measured by Roychowdhury (2006) model, which uses three measures for it, the Operating Cash Flow method (ReEM1), Overproduction (ReEM2), discretionary expense (ReEM3). Empirical estimates are obtained by and to address the issue of endogeneity. AccConv and ReEM have a positive and significant relationship across all models by confirming the assumption that accounting conservatism may facilitate ReEM among firms listed on the Pakistan Stock Exchange. Empirical findings are also supported by literature (Machdar et al., 2021).

As it is evident from the results reported in Tables 3 and 4, conservatism has a negative impact on AccEM. To some extent, it facilitates ReEM as conservatism has a positive relation with ReEM. To study the ultimate effect of conservatism on EM practice, the net impact of conservatism is analyzed by dividing the sample into suspect and non-suspect firms. Further, suspect firms are identified by following Roychowdhury (2006). Suspect firms have a higher probability of being involved in EM. Suspect companies are those when earnings before extraordinary items over lagged assets are (i) greater than 0 and less than 0.005, and (ii) EPS is greater than 0 and less than 0.002. Logit regression is applied to obtain the results as the dependent variable is binary.

The empirical estimations after using logit regression are reported in Table 5 to confirm the assumption that conditional conservatism results in a lower level of EM if a firm is suspected of being involved in either type of EM. The value of Pseudo *R*-square is 0.14, which

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**Table 3:** Accrual Earnings Management and Accounting Conservatism

| | Dependent Variable(AccEM) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **M1** | | | **M2** | | | **M3** | | |
| | Col (1) | Col(2) OLS | Col(3) GMM | Col(1) | Col(2) OLS | Col(3) GMM | Col(1) | Col(2) OLS | Col(3) GMM |
| Lag(M1) | | | −0.070** (0.084) | | | | | | |
| Lag(M2) | | | | | | −0.106** (0.013) | | | |
| Lag(M3) | | | | | | | | | −0.102** (0.017) |
| $AcctConv_{it}$ | −0.13* (0.33) | −0.02** (0.007) | −0.224 (0 .085) | −0.03* (0.01) | 0.086* (0.00) | −0.566** (0 .767) | −0.34* (0.34) | −0.32** (0.243) | −0.652** (0 .732) |
| $SIZE_{it}$ | 1.31** (0.59) | 3.70*** (0.015) | −1.38** (.601) | 0.319 (0.32) | 0.191* (0.67) | −0.45** (0.454) | 0.853 (0.45) | 0.543* (0.976) | −0.311** (0.467) |
| $ROA_{it}$ | −0.01* (0.00) | 1.641* (2.512) | 0.104*** (0.012) | −0.01* (0.00) | −0.013 (0.00) | 0.898** (0.25) | −0.54** (0.76) | −0.340** (0.001) | 0.192** (0.245) |
| $Cycle_{it}$ | 0.01* (0.01) | 0.08*** (0.266) | 0.099** (0 .039) | 0.03*** (0.00) | 0.09** (0.03) | 0.765** (0 .244) | 0.98*** (0.34) | 0.041** (0.923) | 0.452** (0 .124) |
| $PrtB_{it}$ | | −0.78** (0.094) | 0.008** ( 0.008) | | −0.15** ( 0.14) | 0.687* (0.243) | | −0.450** ( 0.23) | 0.532** ( 0.244) |
| $Spread_{it}$ | | 0.30*** (0.06) | −0.094 (0 .211) | | 0.01** (0.01) | −0.566** (0 .876) | | 0.011** (0.232) | −0.123** (0 .454) |
| $MktLEV_{it}$ | | 0.85*** (0.00) | 0.267** (0 .225) | | 0.86** (0.82) | 0.458** (0 .677) | | 0.450** (0.123) | 0.570* (0 .565) |
| $MktCap_{it}$ | | −0.44** (0.00) | −0.25*** (0.002) | | −0.01** (0.00) | −0.343** (0.723) | | −0.45** (0.343) | −0.46*** (0.088) |
| $MktShare_{it}$ | | −0.02 (0.02) | −0.099** (0.029) | | −7.633 (1.02) | −0.045** (0.576) | | −0.344 (0.723) | −0.245** (0.633) |
| *F*-Value | | 5.35*** | | | 4.27*** | | | 7.15*** | |
| Wald Chi2 | | | 108.8*** | | | 133.1*** | | | 127.1*** |
| AR(1) | | | −6.52*** | | | −6.09*** | | | −6.01*** |
| AR(2) | | | −2.933*** | | | −3.18*** | | | −3.27*** |
| Chi-square | | | 576.4*** | | | 538.0*** | | | 533.6*** |

Terms in parenthesis are the robust standard errors, ***, **, and * are indicate significant at 1%, 5%, and 10% level of significance.

shows that the model is fitted to the data. This study has nine predictors and the model employed in the study is significant at a 1% level of significance. Table 5 tells the impact that predictors have on the dependent variable in our logit model and $\beta$ represents the log-odds ratio "Exp($\beta$)"; however, for the logit regression, the odds ratio is used for the interpretation. Field (2009) reported that if the value of Exp($\beta$) > 1, the odds of the outcome occurring increase as a result of an increase in the predictor and vice versa.

From Table 5, it can be seen that all the variables except $Spread_{it}$ are significantly impacting the earnings management practices of the Pakistani listed companies. In our logit model, accounting conservatism ($AcctConv_{it}$) is significantly negatively related to the earnings management practices of the firms. The variable shows the $\beta$ coefficient of −0.3034** and the significance level is 5%. Similar results have been reported by the studies of (Lara et al., 2012). The odds ratio "Exp($\beta$)" suggests that one unit increase in the conservative financial reporting decreases its odds to follow

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**Table 4:** Real Earnings Management and Accounting Conservatism

|  | ReEM1 | | | ReEM2 | | | ReEM3 | | |
|---|---|---|---|---|---|---|---|---|---|
|  | Col(1) | Col(2) | Col(3) | Col(1) | Col(2) | Col(3) | Col(1) | Col(2) | Col(3) |
|  |  | OLS | GMM |  | OLS | GMM |  | OLS | GMM |
| Lag(M1) |  |  | 0.560**<br>(0.884) |  |  |  |  |  |  |
| Lag(M2) |  |  |  |  |  | 0.546***<br>(0.453) |  |  |  |
| Lag(M3) | 0.16**<br>(0.336) |  |  | 0.434*<br>(0.24) |  |  |  |  | 0.522**<br>(0.422) |
| AcctConv$_{it}$ |  | 0.021***<br>(0.007) | 0.2741**<br>(0.007) |  | 0.025*<br>(0.45) | 0.124**<br>(0.45) | 0.64*<br>(0.53) | 0.51**<br>(0.44) | 0.522**<br>(0.342) |
| SIZE$_{it}$ | 1.318**<br>(0.596) | 3.7076**<br>(0.015) | 0.66**<br>(0.23) | 0.332<br>(0.52) | 0.453*<br>(0.34) | −0.656**<br>(0.355) | 0.564<br>(0.46) | 0.545*<br>(0.63) | −0.221**<br>(0.722) |
| ROA$_{it}$ | −0.01**<br>(0.0001) | 1.641<br>(2.512) | 0.343<br>(0.442) | 0.73***<br>(0.45) | −0.34***<br>(0.13) | 0.243<br>(0.222) | −0.65*<br>(0.5) | −0.244<br>(0.05) | 0.522<br>(0.534) |
| Cycle$_{it}$ | 0.019*<br>(0.014) | 0.086***<br>(0.266) | 0.456**<br>(0. 464) | 0.04**<br>(0.45) | 0.45**<br>(0.942) | 0.46*<br>(0. 244) | 0.46**<br>(0.5) | 0.34**<br>( 0.934) | 0.133**<br>(0 .124) |
| PrtB$_{it}$ |  | −0.787***<br>(.094) | 0.455**<br>( 0.834) |  | −0.115<br>(0 .533) | 0.446*<br>( 0.354) |  | −0.53**<br>( 0.23) | 0.534*<br>( 0.342) |
| Spread$_{it}$ |  | 0.3041***<br>(0.0640) | −0.545<br>(0 .452) |  | 0.245<br>(0.327) | −0.464<br>(0 .835) |  | 0.655**<br>(0.355) | −0.234<br>(0 .342) |
| MktLEV$_{it}$ |  | 0.852***<br>(.008) | 0.353**<br>(0 .353) |  | 0.545*<br>(0.35) | 0.464*<br>(0 .347) |  | 0.545*<br>(0.12) | 0.455*<br>(0 .244) |
| MktCap$_{it}$ |  | −0.443***<br>(0.008) | −0.433***<br>(0.754) |  | −0.35*<br>(0.33) | −0.353**<br>(0.353) |  | −0.51**<br>(0.75) | −0.322***<br>(0.455) |
| MktShare$_{it}$ |  | −0.029<br>(0.020) | −0.674* |  | −0.234<br>(5.02) | −0.355**<br>(0.676) |  | −0.654<br>(0.64) | −0.642**<br>(0.352) |
| *F*-Value |  | 6.52*** |  |  | 5.27*** |  |  | 4.25*** |  |
| Wald Chi2 |  |  | 122.29*** |  |  | 112.1*** |  |  | 146.18*** |
| AR(1) |  |  | −2.60*** |  |  | −6.09*** |  |  | −6.01*** |
| AR(2) |  |  | −1.19*** |  |  | −3.18*** |  |  | −3.27*** |
| Chi-square |  |  | 139.35*** |  |  | 538.06** |  |  | 533.68*** |

Terms in parenthesis are the robust standard errors, \*\*\*,\*\*, and \* are indicate significant at 1%, 5%, and 10% level of significance.

EM practices by 0.1407 times with all other predictors constant (Delkhosh & Sadeghi, 2017). This might be because conservative reporting facilitates the early recognition of losses and puts limits on the application of earnings management practices. For the control variables, Size (Size$_{it}$) is statistically significant with a coefficient of −0.172 at the significance level of 5%. This suggests a negative and significant relationship between earnings management and the size of the company. As the company's size increases, there are fewer chances to follow EM practices. The "Exp($\beta$)" indicates that the odds of a company implementing EM practices decreases by 0.2493 as the size of a company increases, also supported by (Dechow & Skinner, 2000; Kliestik et al., 2020).

To date, research related to links between business uncertainty, earnings management, and financial reporting has been largely ignored. Due to this unexplained bias, investors receive incomplete information about the firm's performance and the successful implementation of business strategies. Earnings management and financial reporting standards (accounting conservatism) will continue to mislead investors without any research-related uncertainty. Studies

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**Table 5:** Logit Regression for Suspect Firms

| | | Suspect Firms | | |
|---|---|---|---|---|
| | **Predicted Relation** | **Col(1)** | **Col(2)** | **Odds Ratio "Exp (β)"** |
| $AcctConv_{it}$ | − | −0.3034** (0.1125) | −0.137*** (0.063) | 0.140 |
| $SIZE_{it}$ | − | −0.172** (0.1628) | −0.653*** (0.02) | 0.249 |
| $ROA_{it}$ | − | 0.2659** (0.5957) | 0.0525*** (0.0242) | 0.999 |
| $Cycle_{it}$ | + | 0.4951*** (0.066) | −0.023** (0.008) | 1.023 |
| $PrtB_{it}$ | − | 0.0731* (0.044) | −0.142** (0.002) | 1.023 |
| $Spread_{it}$ | − | −0.016 (0.014) | −0.127 (0.059) | 0.822 |
| $MktLEV_{it}$ | + | | 0.496** (0.271) | 11.951 |
| $MktCap_{it}$ | − | | −0.353** (0.008) | 0.999 |
| $MktShare_{it}$ | − | | 0.2098*** (0.041) | 0.822 |
| Pseudo $R$ sq | | | 0.14 | |

**Table 6:** Logit Regression: Accounting Conservatism, Earnings Management, and Uncertainty

| | Suspect Firms | | | | | |
|---|---|---|---|---|---|---|
| | **Col(1)** | **Col(2)** | **Odds Ratio "Exp(β)"** | **Col(1)** | **Col(2)** | **Odds Ratio "Exp(β)"** |
| $AcctConv_{it}$ | −0.303** (0.1125) | −0.245*** (0.005) | 0.219 | −0.442** (0.3545) | −0.451*** (0.565) | 0.161 |
| $Uncer_{it}$ | 0.1720 (0.1628) | 0.940*** (0.129) | 2.090 | 0.255 (0.344) | 0.358*** (0.459) | |
| $AcctConv * Uncer_{it}$ | −0.1826** (0.464) | −0.033*** (0.463) | 0.133 | | | |
| $Size_{it}$ | −0.265** (0.595) | −1.1671** (0.504) | 0.483 | 0.557*** (0.657) | −0.251*** (0.652) | 0.052 |
| $Cycle_{it}$ | −0.016 (0.014) | −0.023** (0.008) | 2.976 | −0.246 (0.764) | −0.630*** (0.534) | 0.983 |
| $ROA_{it}$ | −0.097 (0.004) | −0.142** (0.002) | 0.999 | −0.544 (0.564) | −0.466** (0.455) | 0.976 |
| $PrtB_{it}$ | | −0.127*** (0.059) | 1.023 | | −0.567*** (0.249) | 1.012 |
| $MktLEV_{it}$ | | 0.496** (0.271) | 1.050 | | 0.424** (0.981) | 12.864 |
| $MktShare_{it}$ | | −0.353** (0.008) | 0.985 | | −0.241** (0.248) | 1.002 |
| $F$-Value | | 9.02*** | | | 4.53*** | |
| Pseudo $R$ sq. | | | 0.0587 | | | 0.0623 |

Terms in parenthesis are the robust standard errors, ***,**, and * are indicate significant at 1%, 5%, and 10% level of significance.

by Capkun et al. (2016), Chen et al. (2017), Hsieh et al. (2019), Ferracuti and Stubben (2019), and Roychowdhury et al. (2019) suggested future research related to the topic of financial reporting in the wake of uncertainty. This research work analyzed the moderating role of accounting conservatism to put restrictions on EM (of either type) for firms facing uncertainty.

In the face of uncertainty, conservative financial reporting has a moderating role in limiting earnings management

(Table 6). The dependent variable is earnings management, and conservatism financial reporting is an independent variable, and control variables include $Size_{it}$, $Sales_{it}$, $Cycle_{it}$, $ROA_{it}$, $PrtB_{it}$, $MktLEV_{it}$, $MktShare_{it}$, $Spread_{it}$, $Volatility_{it}$. Table 7 shows results for the interaction term $AcctConv * Uncer_{it}$ conditional conservatism and uncertainty while EM is a dependent variable that is based on suspect firms.

In Table 6, the value of Pseudo $R$-square is 0.0587, which indicates that the model is fitted to the data. In this

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study, there are nine predictors; therefore, the degrees of freedom are nine. In this case, the model employed in the study is significant as the *p*-value is 0.000 (which is less than 0.01). Table 6 tells the impact that predictors have on the dependent variable in our logit model. *β* represents the log-odds ratio; however, the odds ratio "Exp (*β*)" is used to interpret the logistic regression. From Table 6, it can be seen that all the variables are significantly impacting the earnings management practices of the companies included in the sample of the study. In our logit model, conditional accounting conservatism (AcctConv$_{it}$) is significantly negatively related to the earnings management practices of the firms. The variable shows the *β* coefficient at −0.245 in col(2). Similar results have been reported by the studies of Lara et al. (2012). The odds ratio "Exp (*β*)" suggests that one unit increase in the conservative financial reporting decreases its odds to follow EM practices by 0.219 times with all other predictors constant (Delkhosh & Sadeghi, 2017; Shubita, 2021). This is because conservative reporting facilitates the early recognition of losses and limits the implication of earnings management.

The moderating variable is obtained by multiplying conditional accounting conservatism with uncertainty. The coefficient of the interaction variable is statistically significant with coefficient 0.033 in col(2), with a negative sign indicating that a firm is less likely to adopt earnings management practices by following conservative financial reporting during uncertainty. The odds ratio of the interaction term predicts that as the firm changes from the defender (0) to prospector (1), the odds of adapting EM practices decreases by a factor of 0.133 by conservative firms during uncertainty. Moreover, 'defenders are those firms with less uncertainty, and 'prospectors' have higher levels of uncertainty.

## 5. Conclusion

We document a positive and significant effect of uncertainty on earnings management and a negative relationship between earnings management and accounting conservatism as supported by literature (LaFond & Watts, 2008; Lara et al., 2012; Ason et al., 2021). The findings of this study contribute to the literature of accounting by providing additional insight into the understanding of earnings management activity during uncertainty concerning accounting conservatism. These findings will be helpful to market participants by explicitly documenting the relationship between accounting conservatism and the extent of earnings management during uncertainty. Our empirical results have implications for both academics and practitioners. Our study provides counter-arguments to the policymakers' decision about removing conservatism from the conceptual framework. Although all organizations face uncertainty, the level of uncertainty varies across firms.

When businesses are dealing with a lot of uncertainty, conservative financial reporting can help managers make the best judgments possible. Because of its limitations, this study opens up new research avenues for future scholars. The scope of this paper is limited to only conditional conservatism and accrual earnings management. Future research could be conducted on the role of unconditional conservatism and real earnings management during uncertainty by taking another proxy of uncertainty. Second, future research may also examine the net effect of accounting conservatism on the trade-off between accrual earnings management, and real earnings management is. This study uses data from one country, which may influence the generalizability of the findings. A cross country might be conducted to overcome the issue of generalizability.

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## Appendix

| Ratios | Formula |
| --- | --- |
| The ratio of research and development To sales company's propensity to search for new products | The ratio of net intangible assets to sales Due to unavailability of data of R&D cost, Net intangible assets will be used to represent R&D expense (Kangtao et al. (2015) and Wang (2018) |
| The ratio of employees to sales Company's ability to produce and distribute products and services efficiently. | The ratio of the number of employees to sales |
| Change in total revenue Company's historical growth or investment opportunities. | One-year percentage change in total sales |
| Marketing to Sales Company's focus on exploiting new products and services. | Ratio of selling, general and administrative expenses to sales |
| Employee fluctuations Company's organizational stability. | The standard deviation of the total number of employees |
| Capital intensity Company's commitment to technological efficiency. | Capital intensity is measured as net Property, Plant & Equipment PPE scaled by total assets |