Economic policy uncertainty and incentive to smooth earnings: Evidence from India

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Abstract

We examine how economic policy-induced uncertainty influences managers' discretionary accounting choices to achieve a smooth earnings stream. We find that managers partially offset the risk of policy uncertainty on reported earnings by using discretionary accruals. We mainly observe that firms report more negative discretionary accruals when managers are less certain about their prospects. We further show that managers' engagement in negative discretionary accruals is greater when firms' current period pre managed earnings are higher. We also find that the propensity of reversal of discretionary accruals is positively associated with levels of policy uncertainty. Overall, our results imply that managers opportunistically use discretionary accruals around an uncertain exogenous environment to smooth earnings.

Keywords: Earnings management; Discretionary accruals; Policy uncertainty; India.

JEL classification: G18, G31, G32, H26

Introduction

Recent studies advocate that economic policy uncertainty (henceforth, policy uncertainty), such as taxes, government spending, and monetary policies, increases the risk of managerial decision-making. These studies mainly document that during a high policy uncertainty period, firms reduce capital investments (Gulen and Lon, 2015), or postpone mergers and acquisition deals (Nguyen and Phan, 2017), and retain slack resources till the uncertainty is resolved (Lee, Pittman, and Saffar 2016). While the impact of policy uncertainty on corporate policies is well-documented, how firms counterbalance the effect of policy uncertainty on reported earnings is relatively less explored. In this paper, we address this gap by examining the impact of policy uncertainty on managers' choice of recognizing discretionary accruals[2], as one crucial means to smoothen firms' reported earnings.

The survey of Graham et al.'s (2005) shows that firms' CFOs prefer a smooth earnings stream since firms with a stable earnings stream receive valuation premium. We posit that policy uncertainty may impact discretionary accruals (DAs) as policy uncertainty raises the variability of pre managed earnings, which in turn affects the smoothness of reported earnings. This is supported by existing studies which indicate that policy-induced uncertainty creates uncertainty in corporate policies (see, Gulen and Lon, 2015; Nguyen and Phan 2017; Lee, Pittman, and Saffar 2016). Thus, additional variability in pre managed earnings induced by policy uncertainty may motivate managers to use discretionary accruals to report earnings consistent with forecasts[3] (Clement, Frankel, and Miller, 2003). Information asymmetry between managers and outside investors

[2] In contrast to real earnings management (e.g., by using price discounts to accelerate sales, delaying R&D expenses, etc.), discretionary accruals management does not disrupt the economic outcomes of a firm (Healy and Whalen, 1999)

[3] Healy and Wahlen (1999) indicate that government actions are one of the primary reasons to manage discretionary accruals.

induced by policy uncertainty further provides a managerial opportunity to hide the actual economic conditions of firms.

To test our prediction, we use Baker, Bloom, and Davis index (2016) (BBD index) as a news-based measure of policy uncertainty. The BBD index's importance to the economy has received enormous attention in public[4]. The IMF employs this index as an input variable for its statistical models to determine the performance of national economies[5]. Using data from 2003 to 2017 for Indian firms, we primarily observe that higher levels of policy uncertainty indeed increase the variability in pre managed earnings. A one-standard-deviation increase in the log of the BBD index increases the standard deviation of pre managed earnings by 2.79% of total assets Thus, managers with the intent of smoothening their earnings are likely to manage reported earnings to offset the effect of policy uncertainty. Consistent with this opinion, we show that managers use discretionary accruals, particularly income-decreasing discretionary accruals, to manage reported earnings during increased policy uncertainty. A one-standard-deviation increase in the log of the BBD index decreases discretionary accruals (DAs) by an amount equal to 3.3% of the lag of the firm's total assets. We report our empirical results after controlling for various firm-year specific factors, including firm-fixed effects. Further analysis suggests that policy uncertainty and discretionary accruals association is more pronounced for firms having greater exposure to policy uncertainty. Overall, these findings are consistent with the view that firms manage earnings downward during uncertain times (Stein and Wang, 2016).

We next explore the managers' intent to report income-decreasing discretionary accruals in periods of heightened policy uncertainty. Fudenberg and Tirole (1995) argue that when a firm's

[4] See http://www.policyuncertainty.com/media.html for the link of public media related to EPU.

[5]. See http://review.chicagobooth.edu/magazine/fall-2014/the-price-of-policy-uncertainty.

future performance is anticipated to be poor, managers have incentives to underreport current period earnings by transferring current earnings for possible use in the future, mainly when the current period earnings are relatively good. This is because the market outweighs future earnings compared to current earnings while assessing managerial performance. Recent studies document that higher levels of policy uncertainty reduce firms' capital investments and delays mergers and acquisition deals[6], which in turn may cause firms to experience lower future pre managed earnings. In such a case, managers with relatively good current period earnings have incentives to prefer accounting choices that decrease their current discretionary accruals, consequently, saving current earnings for possible use in the future. This also enables them to offset an additional variability in their pre managed earnings produced by policy uncertainty. As a result, the reported earnings would exhibit less variability than the pre managed earnings due to discretionary accrual adjustment. Consistent with this managerial intent, our empirical results show that the negative association between DAs and policy uncertainty is stronger for firms with the current period pre managed earnings[7] being relatively high. For strengthening our argument, we further find that the difference between the standard deviation of pre managed earnings and reported earnings increases with the levels of DAs, particularly during times of relatively higher policy uncertainty. Overall, these findings are consistent with the view that firms use DAs to smoothen earnings during uncertain times.

One may argue that if managers underreport DAs for possible use in the future, we should observe a subsequent reversal of these DAs, particularly in periods when managers are uncertain

[6] See, Nguyen, and Phan (2017); Chen, Cihan, and Jens (2017)

[7] Following DeFond and Park (1997), we estimate pre-managed earnings as net income before extraordinary items scaled by assets - discretionary accruals

about pre managed earnings due to policy uncertainty. Using binary and continuous reversal measures, we find that the intensity of the subsequent reversal of discretionary accruals increases with higher levels of policy uncertainty. This mainly holds when firms report relatively higher current earnings, and they have relatively greater exposure to policy uncertainty.

Overall, our results are novel in documenting that managers opportunistically manage earnings downwards when they confront policy uncertainty to achieve a smooth earnings stream. At the macro level, studies show that policy uncertainty influences capital flows, business cycles, and the speed of economic recovery (Bloom, Floetotto, Kaimovich, Sapoera-Eksten, and Terry 2012; Baker et al. 2016; Julio and Yook, 2012). Various studies suggest that policy uncertainty influences firm-level decisions, such as capital investments (Gulen and Ion, 2015) and cash holdings (Julio and Yook 2012). Yung and Root (2019) document a positive association between policy uncertainty and earnings management. Nevertheless, our study is distinct as they use absolute discretionary accruals, and do not empirically examine the managerial intent to smoothen earnings. We further explore this association by using signed discretionary accruals, which helps us understand the phenomenon better. It shows that managers save their current period earnings for use in the future, mainly when they are uncertain about their prospects due to policy-induced uncertainty. Therefore, we contribute to the earnings management literature that examines how managers use discretionary accrual choices to offset the variability in their earnings, induced by uncertainty. In this regard, our paper is similar to that of Stein and Wang (2016), who observe that firms manage earnings downward when firm-level uncertainty is high. However, our study differs from Stein and Wang (2016), This is because we focus on uncertainty over government actions that are mainly outside managers' control, thus exogenous, nevertheless strong enough to influence firms' earnings and information asymmetry between insiders and outsiders, and therefore, provides

incentives and opportunities to managers to offset the effect of uncertainty from reported financial numbers—.

Our study also contributes to literature investigating significant profit reducing write-off or income-decreasing accruals for increasing future reported profit. Previous studies describe this phenomenon as a big-bath accounting (Healy, 1985; Watts and Zimmerman, 1986; DeAngelo, 1988; Christensen, Paik, and Stice, 2008)

The rest of the paper is organized as follows. Section 2 describes our data and variable formulations. Section 3 documents our empirical findings. Section 4 concludes.

2. Data and variable formulation

2.1 Data

We acquire data for this study from the Prowess, a database maintained by the Centre for Monitoring Indian Economy (CMIE). We include all firms listed on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) for the period 2003 to 2017, but exclude financial firms, utility firms, and government firms because their financial and investment policies are significantly different from other industries. We also exclude firm-year observations when the book value of equity is negative (apparently sick firms). To mitigate the effect of outliers, we winsorize all variables used for both the bottom and the top 1% of sample firms. Finally, we have around 10,000 firm-year observations from more than 2,000 different firms. Table 1 lists the variables used in the analysis, with their definitions.

2.2. Variable formulation

2.2.1. Discretionary accruals

Our primary dependent variable is discretionary accruals, which is computed through a two-stage process. First, we calculate total accruals as the difference between income before extraordinary items (*Net profit*), and net cash flows from operating activities less extraordinary items and discontinued operations *OFC*), scaled by a lag of total assets (TA).

$$ACC_{i,t} = \frac{Net\ profit_{i,t} - OFC_{i,t}}{TA_{i,t-1}}$$

Second, we estimate normal accruals from the cross-sectional version of the modified Jones model proposed by Dechow et al. (1995)

$$ACC_{i,t} = \propto + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{t-1}} + \beta_3 \frac{GPPE_{it}}{TA_{t-1}} + \varepsilon_{it} \quad (2)$$

Where ΔREV is a change in sales from the previous year's sales, ΔREC is a change in accounts receivable. *GPPE* is Gross Property, Plant, and Equipment that is the sum of Gross Fixed Assets and Capital Work in Progress. For estimating the coefficients of equation (2), we require that each industry-year group has at least eight observations for all variables. Therefore, we drop industry-year observations where the number of observations is less than eight. The signed residuals of equation (2) are our proxy for discretionary accruals (*DA*) to be used in equation 3:

$$DA_{i.t} = ACC_{i,t} - \left(\propto + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{t-1}} + \beta_3 \frac{GPPE_{it}}{TA_{t-1}} \right) \quad (3)$$

2.2.2. Policy uncertainty

We use Baker et al.'s (2016) news-based policy uncertainty index (BBD index) to measure policy uncertainty. The value of the BBD index ranges from 0 to 100. This index is mainly developed to capture policy-related economic uncertainty. The BBD index covers seven major Indian newspapers, which are The Economic Times, the Times of India, the Hindustan Times, the Hindu, the Statesman, the Indian Express, and the Financial Express. To capture policy uncertainty, the index uses the frequency of articles in seven newspapers that include the following words: economy'; uncertain' or uncertainty'; and one or more of policy-related words 'fiscal policy,' 'monetary policy,' 'PMO,' parliament BBD index is available in monthly frequency. Following Gulen and Lon (2015), we measure an annualized policy uncertainty (*EPU index*) as the natural logarithm of the mean of the BBD index over 12 months of a given year.

2.2.3. Firm-specific exposure to policy

To assess firm-specific exposure to EPU, we follow Nagar et al. (2019) and compute the sensitivity of a firm's stock market returns to EPU by running the following regression for each firm using monthly returns over our full sample period:

$$R_{i,t} = \alpha + \beta_1 PU\ index_t + \beta_2 MKT_t + \beta_3 SMB_t + \beta_4 HML_t + \varepsilon_{i,t} \quad (4)$$

Here,$R_{i,t}$, is the firm's excess monthly returns for month *t*. *MKT* represents market portfolio excess returns. *SMB* and *HML* are long-short return spread, developed on market capitalization

and book-to-market ratio[8] (Fama and French, 1993), respectively. We run this regression at firm-level, rather than portfolio level, to warrant that our return measure captures firm-specific sensitivity to its respective policy beta (*EPU Index*). To resolve bias, if any, in estimates triggering from non-synchronous trading, we use Dimson's (1979) methodology and consider a lagged form of the variable (*t-1*) along with their contemporaneous (*t*) for each factor. Therefore, our regression includes eight-factors. We then sum the contemporaneous *EPU Index* beta and the lagged *EPU Index* beta to develop policy beta for the firm. Moreover, we use the absolute value of policy beta (*Abs(Policy beta))*, since we do not have a clear insight about the direction of the association between firms' returns and their *EPU Index*. Therefore, a higher value of policy beta for a firm represents its greater exposure to policy uncertainty.

2.2.4. Other variable formations

We follow DeFond and Park (1997) and estimate pre managed earnings as net income before extraordinary items scaled by assets, minus discretionary accruals. We estimate discretionary accruals from equation (3). We measure firms' good performance by *Good performance* variable as an indicator variable that takes a value 1 for good performing firms, and 0 for poor performing firms. We consider firms' performance to be good (poor) when their current pre managed earnings lie above (below) the sample median, by both year and industry.

We also use various control variables. We control for *Firm size* measured by the natural log of total assets. We control for leverage (*Lev*) using a ratio of total borrowings to total assets. The firms' operating performance is measured by the return on assets (*ROA*), considered as the ratio of operating profits to total assets. Firm-level *cash holding* is controlled by *Cash ratio*

[8]. We collect data for Fama and French's (1993) three factors from Agarwalla, Jacob, and Varma's (2013) data library.

measured by the ratio of cash and marketable securities to the net asset (total assets net of cash and marketable securities). *Tobin Q* is the sum of the market value of common stock plus book value of total liabilities, divided by the total book value of assets. Firms that report a loss in the previous year are likely to manage earnings more. We control for this effect by a *Loss dummy* that takes value 1 for firms reporting losses during the last year, and 0 otherwise. The operating risk of a firm is controlled by *Std cashflow* measured as the standard deviation of operating cash flow to total assets over the past four years. *Firm age* is the natural log of the number of years of the firm since its inception. These variables are widely accepted antecedents for earnings management literature.

3. **Empirical results**

3.1. Descriptive analysis

Table 1 details the variables used in the study. Table 2 reports an overview of the sample firms. Our sample consists of mature firms with an average age of 26.76 years. We observe that our average firm has Rs. 2155.97 million worth of assets with 25th percentile firms at Rs 526.89 million and 75th percentile firms at Rs 8022.45 million of assets. Therefore, we can say that our results apply to both large and small firms. We next observe that an average firm reports .2.4% of total assets as discretionary accruals (*DA*), with a median value of -0.5% of total assets.

In Panel A of Table 3, we report the Pearson correlation value between variables used in the study. As expected, *EPU Index* is negative and significantly correlated with *DAs*.

3.2. The association between policy uncertainty and the variability in pre managed earnings

In this subsection, we test our preliminary prediction that higher levels of policy uncertainty increase the variability in pre managed earnings. To do this, we perform a pooled OLS

for multivariate analysis to examine the effect of policy uncertainty on the variability of pre managed earnings. The variability of pre managed earnings is a firm's four-year standard deviation of pre managed earnings, scaled by total assets.

$$Std_{PreManaed_{earnings}}{}_{i,t} = \alpha + \beta EPU\ index_{i,t} + \gamma . X_{i,t} + f_i + \varepsilon_{i,t} \quad (5)$$

Here, *i*, and *t*, represent firm *i* and year *t*. The dependent variable is the standard deviation of pre managed earnings. We include firm fixed effects $f_i$to control for (homogenous) firm-variation. In most of the regression models, the vector of controls$X_{i,t}$ is included to control for firm-level determinants as described in Section 2 and as defined in Table 1. Our interest variable is *EPU Index,* and we expect β to be positive to confirm our prediction.

Table 4 reports the multivariate regression results. The coefficient of *EPU Index* is positive and statistically significant at a 1% level. A one-standard-deviation increase in *EPU Index* increases the standard deviation of pre managed earnings by 2.79% of total assets. Our result is also economically significant, given the mean value of total assets (Rs 2155 million). The positive coefficient implies that firms tend to face greater variability in pre managed earnings in periods of heightened policy uncertainty. Next, we examine whether the relationship between policy uncertainty and the standard deviation of pre managed earnings varies with firms' exposure to policy uncertainty. While we include an interaction term of *Abs(Policy beta)*and *EPU Index* in the regression equation eq (5), we exclude the main effect of *Abs(Policy beta)* from the regression since it is time-invariant and thus, is subsumed by firm-fixed effects. The coefficient value of the interaction term (*EPU Index* Abs(Policy beta)*) is positive and statistically significant at a 5% level, along with the main effect of *EPU Index*. This implies that the variability in firms' pre managed earnings increases with their exposure to policy uncertainty.

Overall, the empirical results confirm our preliminary prediction that policy uncertainty induces additional variability in firms' pre managed earnings

3.3. The association between Policy uncertainty and discretionary accruals

We find above that policy uncertainty induces additional variability in pre managed earnings, more so for firms having higher exposure to policy uncertainty. Therefore, managers have incentives to preempt the same by managing discretionary accruals to offset the effect of policy uncertainty on reported earnings. In this subsection, we empirically examine the association between policy uncertainty and discretionary accruals. To do so, we use the following regression:

$$DAs_{i,t} = \alpha + \beta EPU\ index_{i,t} + \gamma . X_{i,t} + f_i + \varepsilon_{i,t} \quad (6)$$

Here, *i*, and *t*, represent firm *i* and year *t*. The dependent variable is discretionary accruals, measured by modified Jones's (1995) model. We include firm fixed effects $f_i$to control for (homogenous) firm-variation. We also include the vector of controls$X_{i,t}$ for firm-level determinants of discretionary accruals, as described in Section 2 and as defined in Table 1.

Table 5 tabulates the results. In Column (1), we examine the impact of *EPU index* on the absolute value of discretionary accruals and find a positive and significant coefficient at a 1% significance level. This suggests that policy uncertainty affects the manager's choice of discretionary accruals. To further explore managers' incentive to manage discretionary accruals in periods of heightened policy uncertainty, we also examine the impact of *EPU Index* on signed *DAs.* In Column (2), the coefficient of *EPU index* is negative and significant at a 1% level, suggesting that managers choose income-decreasing discretionary accruals in periods of heightened policy uncertainty. One standard deviation increase in the *EPU Index* decreases

approximately discretionary accruals by 3.3% of the lag of total assets[9]. In Column (3), we observe that the interaction of *Abs(Policy beta*) and *EPU Index* is negative and statistically significant at 5% level. Corroborating results reported in Section 3.2, where we had observed that firms having greater exposure to policy uncertainty experienced higher variability in pre managed earnings. Therefore, these firms use more of income decreasing discretionary accruals to offset the effect of policy uncertainty on reported earnings.

To examine managers' incentives to report income-decreasing discretionary accruals in periods when they are uncertain about their future earnings due to policy-induced uncertainty, we explore a proposed counterstrategy of managers, to balance the effect of policy uncertainty on the firm's future earnings for the smoothening effect. Fudenberg and Tirole (1995) suggest that the market assigns higher weightage to future earnings of firms as compared to current earnings in assessing managerial performance. Therefore, managers may have strong incentives to transfer current earnings into the future, mainly when current earnings are relatively high, and firms are uncertain about their future earnings. This also has a smoothening effect on earnings. We build on Fudenberg and Tirole's (1995) model and posit that increased policy uncertainty is likely to reduce managerial estimates related to their future earnings. Thus, ceteris paribus, managers with relatively good current period earnings may choose accounting policies that save current earnings for possible use in the uncertain future.

To test the above prediction, following DeFond and Park (1997), we consider firms' performance to be good (poor) when their current pre managed earnings lie above (below) the sample median, by both year and industry. We create an indicator variable (*Good performance*)

[9]. The coefficient value of *EPU Index* (-0.085) multiple by the standard deviation of *EPU Index* (0.388)

that takes a value 1 for good performance firms, and 0 for poor-performance firms and include it in eq (6). Our interest variable is an interaction term between *EPU index* and *Good performance,* and we expect a negative coefficient for it. We also include *Good performance* as an indicator variable to control for the main effect on discretionary accruals in eq (5). Column (4) of Table 5 tabulates results. We observe that the coefficient of *EPU Index* Good performance* is negative and significant. However, the coefficient of *EPU Index* is negative but insignificant. For economic significance, one standard deviation increase in *EPU Index* decreases approximately discretionary accruals by 4.58% of the lag of total assets for firms having relatively good current earnings[10].

In a nutshell, we document that managers underreport current earnings in periods of heightened policy uncertainty, possibly saving for the uncertain future. Moreover, such underreporting of current earnings is 1.39 times[11] higher for firms having relatively good current earnings as compared to the average firm.

3.4. The association between Policy uncertainty and earnings smoothness

One may expect that managers exposed to higher levels of policy uncertainty will use their discretion more towards lowering the variability of reported earnings than the variability of pre managed earnings. Note that if DAs are used to smoothen reported earnings, we would observe that the variability of pre managed earnings would be lower than the variability of reported earnings. In this subsection, we particularly explore the benefit of the proposed counterbalancing strategy of managers to offset the influence of policy uncertainty on their future reported earnings.

[10] The coefficient value of *EPU Index* Good performance* (-0.118) multiple by the standard deviation of *EPU Index* (0.388).

[11] The coefficient value of *EPU Index* Good performance* (-0.118), from column (4) of Table 5, divided by the coefficient value of *EPU Index* Good performance* (-0.085)

We use the standard deviation over four years to estimate the variability in pre managed earnings and reported earnings and estimate *Std_diff* variable, i.e., the difference between the standard deviation of pre managed earnings and the standard deviation of reported earnings. We use four years of information to estimate the standard deviation. We predict a positive association between *EPU Index* and *Std_diff*. Since managers' intent for reporting negative discretionary accruals is to smoothen and have better-reported earnings in the future, we use a lead value of *Std_diff* in the regression analysis.

$$Std\_diff_{\ i,t+1} = \alpha + \beta EPU\ index_{i,t} + \gamma . X_{i,t} + f_i + \varepsilon_{i,t} \quad (7)$$

Here, *i*, and *t*, represent firm *i* and year *t*. The dependent variable is *Std_diff*. We include firm fixed effects $f_i$to control for (homogenous) firm-variation. The vector of controls $X_{i,t}$ is included to control for firm-level factors as described in Section 2 and as defined in Table 1.

Table 6 reports the regression result, where the coefficient of *EPU Index* is positive and statistically significant at a 1% level. The result is consistent with our expectations. That is, managers use more discretionary accruals to smoothen future earnings in periods of heightened policy uncertainty. In Column (2), we further observe that the coefficient of interaction between *EPU* and *Abs(policy beta*) is negative but statistically insignificant.

In Column (3), We find that the impact of *EPU Index* on earnings smoothing proxy (*Std_diff*) is higher for firms having good current performance, as reported by the interaction between EPU Index and *Good performance* variable. This is again consistent with our previous sections' results.

If on average, managers use discretionary accruals to report smoother earning streams, the positive association between *Std_diff* and *EPU Index* would be stronger with higher DAs' values. In order words, if DAs are used more extensively to achieve more stable future earnings, the impact

of policy uncertainty on *Std_diff* is to be more significant for firms that report higher values of discretionary accruals. Since firms may use both income-increasing and income-decreasing discretionary accruals to smooth earnings, we use the absolute value of discretionary accruals instead of signed discretionary accruals. For the empirical investigation, we create two subsamples. In the first sample, we include all firms that report the absolute value of discretionary accruals more than the yearly median value of the absolute value of discretionary accruals for the period where the value of *EPU Index* is more than the time series median value of *EPU Index*. In the second sample, we include all firms that report the absolute value of discretionary accruals below the yearly median value of the absolute value of discretionary accruals for the period where the value of *EPU Index* is lower than the time series median value of *EPU Index*. *ABSDAH* (*ABSDAL*) variable captures the absolute value of discretionary accruals for the first (second) sample, and 0 for the second (first) sample We include both *ABSDAH* and *ABSDAL* variables in regression equation (7) instead of *EPU Index*. If policy uncertainty is high and discretionary accruals are used more extensively to achieve a more stable earnings stream, we predict the coefficient value to be higher for *ABSDAH* compared to *ABSDAL*.

We run the regression equation (7) without intercept. In Column (4), both coefficients *ABSDAH* and *ABSDAL* are positive, but the value of *ABSDAH* coefficient is much larger than the value of *ABSDAL* coefficient. The difference is also statistically significant at a 1% level. This is consistent with our prediction, i.e., discretionary accruals play a vital role in reducing the variability in reported earnings when policy uncertainty is relatively high.

3.5. The association between Policy uncertainty and the subsequent reversals of discretionary accruals

In the above section, we argue that managers save current year discretionary accruals for possible use in the uncertain future to have smoother future earnings when policy uncertainty is relatively high. If it is so, one should observe a subsequent reversal of these discretionary accruals, made to accomplish managers' goals. In this subsection, we test this prediction and expect that the propensity for the reversal of discretionary accruals is likely to be greater in year *t+1* when firms face higher policy uncertainty in year *t*. This is because the objective of managers for the said DAs is expected to be short, i.e., to smoothen earnings stream.

We use two variables to capture reversals. *REV_DAs* variable is an indicator variable that takes the value of 1 if the value of discretionary accruals is negative in year *t* (Income decreasing) and positive (Income increasing) in year *t+1*. We also use a continuous variable to capture reversals. *CREV_DAs* is equal to the value of discretionary accruals in year *t+1* minus the value of discretionary accruals in year *t*. Nevertheless, *CREV_DAs* is set to 0 whenever *REV_DAs* is equal to 0. *REV_DAs* measures the propensity of reversals, whereas *CREV_DAs* measures the size of original *DAs* and reversals. We use the logit regression for *REV_DAs* and the OLS for *CREV_DAs* to estimate regression coefficients.

$$REV\_DAs \; or \; CREV\_DAs \;_{i,t+1} = \alpha + \beta EPU \; index_{i,t} + \gamma . X_{i,t} + f_i + \varepsilon_{i,t} \tag{8}$$

Here, *i*, and *t*, represent firm *i* and year *t*. The dependent variable is either *CREV_DAs* or *REV_DAs*. We include firm fixed effects f_i to control for (homogenous) firm-variation. The vector of controls $X_{i,t}$ is included to control for firm-level factors as described in Section 2 and as defined in Table 1.

Table 7 reports the results. Panel A reports results for the logit regression, and Panel B presents results for the OLS regression. The coefficients of *EPU Index* is positive and significant for both measures of reversal, reported in Column (1) and (4) for *REV_DAs* and C*REV_DAs*, respectively. For economic significance, from Column (1), a one-unit increase in *EPU Index* causes a 7.42% increase in the likelihood of *DAs* reversals in the next year. In Column (2) and Column (5), we report the results of the interaction between *Good current performance* and *EPU Index* and find a positive and significant association with both reversal variables. However, the interaction between Abs(*Policy beta*) and *EPU Index*, reported in Column (3) and Column (6), is positive, but significant only for significant *REV_DAs* at the conventional level.

Overall, the results of this subsection are consistent with our prediction that managers use discretionary accruals to smoothen future reported earnings in periods of heightened policy uncertainty. We subsequently observe the reversal of these discretionary accruals to smooth future reported earnings.

4. Conclusion

In this paper, we investigate how uncertainty stemming from macroeconomic policy changes (exogenous risk) influences corporate reporting environments. We first show that policy uncertainty exacerbates the variability in pre managed earnings. Therefore, managers use discretionary accruals, particularly income-decreasing discretionary accruals, to smoothen future earnings. Mainly, firms that experienced relatively good current earnings, and exposed to greater policy uncertainty report more income-decreasing discretionary accruals. We interpret these results as a managerial strategy to offset the impact of policy uncertainty on the reported earnings. Consistent with this strategy, we next observe a higher likelihood of reversals of discretionary

accruals after higher policy uncertainty levels, mainly when current period earnings are relatively good

Overall, our study documents a managerial strategy to offset a partial effect of uncertainty around government policy. Therefore, we contribute to the emerging literature on the economic impact of policy uncertainty. We also provide the research that investigates the role of discretionary accruals to achieve a smooth earnings stream.

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Table 1: Definition of variables

The table presents the definitions of all the variables of this study.

Variables	Definition
EPU Index	The natural logarithm of the mean of the BBD index (Baker et al., 2016) over the 12 months of a given year.
Discretionary accruals (DAs)	We use Jones's (1991) model to estimate Discretionary accruals (DAs).
Abs(policy beta)	Compute the sensitivity of a firm's stock market returns to EPU by running the following regression for each firm using monthly returns over our full sample period. The absolute value of β_1 from the regression $$R_{i,t} = \alpha + \beta_1 PU\ index_t + \beta_2 MKT_t + \beta_3 SMB_t + \beta_4 HML_t + \varepsilon_{i,t}$$
Pre managed earnings	Income from extraordinary items minus discretionary accruals
Good Performance	An indicator variable that takes a value 1 for good performing firms, and 0 for poor performing firms. We consider firms' performance to be good (bad) when their current pre managed earnings lie above (below) the sample median, by both year and industry.
Std(pre managed earnings)	A firm's four-year standard deviation of pre managed earnings, scaled by total assets.
Std_diff	The difference between the standard deviation of pre managed earnings and the standard deviation of reported earnings. We use four years of information to estimate the standard deviation.
REV_Das	an indicator variable that takes the value of 1 if the value of discretionary accruals is negative in year *t* and positive in year *t+1*
CREV_Das	the value of discretionary accruals in year *t+1* minus the value of discretionary accruals in year *t*. Nevertheless, *CREV_DAs* is set to 0 whenever *REV_DAs* is equal to 0.
Loss dummy	An indicator variable tables a value 1 for firms reporting losses in the previous year.
Tobin q	The sum of the market value of common stock plus book value of total liabilities, divided by the total book value of assets.
Firm size	The natural logarithm of total assets
Leverage	The ratio of total debt to total assets
Std cashflow	The standard deviation of operating cash flow to total assets over the past three years
Cash ratio	The amount of cash and cash equivalents scaled by total assets net of cash and cash equivalents
Firm age	Natural logarithm of firm age in years (fiscal year minus the year firm was founded.
FO	The percentage of total shares owned by of founders
ROA	Operating profit divided by total assets.

Table 2: Summary statistics
The table shows summary statistics for variables used in the study.

	Mean	Median	p25	p75	Std dev
Das	-.024	-.005	-.076	.057	.406
EPU Index	4.624	4.571	4.287	4.954	0.388
Abs(policy beta)	4.467	2.558	1.046	4.996	6.175
Pre managed earnings	0.058	0.031	-0.036	0.112	0.132
Std(pre managed earnings)	0.249	0.107	0.052	0.228	0.584
Std_ Diff	.145	.055	.014	.14	.345
FO	55.065	55.6	44.79	67.24	14.837
Std cashflow	.085	.056	.031	.101	.097
Firm size	7.676	7.587	6.267	8.99	1.949
ROA	0.106	0.10	0.053	0.148	0.131
Leverage	0.281	0.27	0.118	0.414	0.194
Tobin q	1.37	.995	.816	1.395	1.189
Cash ratio	0.036	0.014	0.005	0.038	0.067
Firm age	26.76	25.99	20.00	34.98	1.74

Table 3:Correlation

Panel A reports the Pearson correlation for the variables used in the std. * shows the significant level at a 1% level.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DAs	1.000										
(2) EPU Index	-0.069*	1.000									
(3) FO	0.029*	-0.009	1.000								
(4) Std cashflow	0.003	-0.043*	-0.004	1.000							
(5) firm size	0.043*	0.018	0.076*	-0.052*	1.000						
(6) ROA	0.032*	0.018	0.074*	0.024*	0.106*	1.000					
(7) leverage	-0.038*	0.036*	0.002	-0.003	0.161*	-0.082*	1.000				
(8) Tobin q	0.025*	-0.107*	0.119*	0.102*	0.155*	0.184*	-0.187*	1.000			
(9) loss dummy	-0.033*	-0.053*	-0.064*	0.035*	-0.073*	-0.360*	0.200*	-0.122*	1.000		
(10) Cash ratio	0.039*	0.040*	-0.012	0.063*	-0.052*	0.087*	-0.180*	0.086*	-0.116*	1.000	
(11) Firm age	0.015	-0.035*	0.051*	-0.062*	0.181*	0.056*	-0.021*	0.047*	-0.033*	-0.021	1.000

Table 4: The relationship between policy uncertainly and the variability in pre managed earnings

The table reports the relationship between policy uncertainty and the variability in pre managed earnings, measured by standard deviation over four years. The definition of variables used in the pooled regression is reported in Table 1. The t-value estimated through clustered standard error is reported below the coefficient in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Std(pre managed earnings)	Std(pre managed earnings)
EPU Index	0.072***	0.051**
	(4.357)	(2.422)
*EPU Index *Abs(policy beta)*		0.006**
		(2.529)
Firm size	-0.058***	-0.058***
	(-2.686)	(-2.661)
ROA	-0.063	-0.062
	(-1.184)	(-1.174)
Leverage	0.164**	0.164**
	(2.478)	(2.460)
Std cashflow	0.955***	0.958***
	(10.055)	(10.042)
Tobin q	0.016*	0.016
	(1.733)	(1.644)
Loss dummy	-0.020	-0.021
	(-1.067)	(-1.077)
Cash ratio	0.034	0.040
	(0.255)	(0.300)
Firm age	-0.180**	-0.177**
	(-2.564)	(-2.508)
FO	0.001	0.001
	(0.659)	(0.654)
Constant	0.788***	0.768***
	(3.221)	(3.128)
N	9,518	9,448
R-squared	0.19	0.19
Firm Fixed effects	Yes	Yes

Table 5: The relationship between policy uncertainly and discretionary accruals.

The table reports the relationship between policy uncertainty and discretionary accruals. The definition of variables used in the pooled regression is reported in Table 1. The t-value estimated through clustered standard error is reported below the coefficient in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	Abs(DA)	Das	DAs	DAs
EPU Index	0.051***	-0.085***	-0.065***	-0.005
	(5.283)	(-7.605)	(-4.620)	(-0.333)
*EPU Index *Abs(policy beta)*			-0.007**	
			(-2.418)	
Good current performance				0.262***
				(2.878)
*EPU Index *Good current performance*				-0.118***
				(-5.918)
Firm size	0.011	-0.022	-0.021	-0.015
	(0.913)	(-1.500)	(-1.475)	(-1.121)
ROA	-0.043	0.023	0.026	0.139***
	(-1.336)	(0.627)	(0.718)	(4.048)
Leverage	-0.039	-0.039	-0.049	-0.016
	(-1.027)	(-0.884)	(-1.109)	(-0.401)
Std cashflow	-0.015	0.041	0.041	0.051
	(-0.268)	(0.644)	(0.655)	(0.857)
Tobin q	0.011**	-0.004	-0.003	0.001
	(2.087)	(-0.642)	(-0.414)	(0.137)
Loss dummy	0.006	-0.024*	-0.023*	-0.054***
	(0.531)	(-1.923)	(-1.813)	(-4.586)
Cash ratio	0.187**	0.354***	0.342***	0.247***
	(2.461)	(4.082)	(3.942)	(3.047)
Firm age	-0.214***	0.066	0.060	0.061
	(-5.246)	(1.420)	(1.282)	(1.408)
FO	-0.001	0.001*	0.001	0.002**
	(-1.050)	(1.742)	(1.384)	(2.209)
Constant	0.564***	0.235	0.291*	-0.041
	(3.906)	(1.426)	(1.765)	(-0.254)
N	10,891	10,891	10,811	10,891
R-squared	0.012	0.011	0.012	0.136
Firm Fixed effects	Yes	Yes	Yes	Yes

Table 6: Relationship between EPU and standard deviation of pre managed earnings minus standard deviation of reported earnings

VARIABLES	Std_ Diff	Std_ Diff	Std_ Diff	Std_ Diff
EPU Index	0.067***	0.079***	0.045**	
	(5.436)	(4.691)	(2.251)	
*EPU Index *Abs(policy beta)*		-0.004		
		(-1.043)		
Good current performance			-0.310***	
			(-2.730)	
*EPU Index *Good current performance*			0.070***	
			(2.758)	
ABSDAH				0.533***
				(18.484)
ABSDAL				0.037***
				(3.017)
FO	0.000	0.000	0.000	0.000
	(0.487)	(0.437)	(0.486)	(0.436)
Std cashflow	0.030	0.031	0.083	0.040
	(0.590)	(0.609)	(1.458)	(0.806)
Firm size	-0.176***	-0.178***	-0.224***	-0.168***
	(-13.058)	(-13.132)	(-14.703)	(-12.914)
ROA	-0.566***	-0.567***	-0.631***	-0.561***
	(-19.100)	(-19.087)	(-19.690)	(-19.382)
Leverage	-0.036	-0.041	-0.076*	-0.023
	(-0.968)	(-1.079)	(-1.781)	(-0.646)
Tobin q	0.012**	0.012**	0.022***	0.006
	(2.338)	(2.357)	(3.641)	(1.286)
Loss dummy	-0.050***	-0.050***	-0.050***	-0.048***
	(-4.774)	(-4.766)	(-4.113)	(-4.764)
Cash ratio	-0.002	-0.002	0.032	-0.050
	(-0.022)	(-0.026)	(0.366)	(-0.686)
Firm age	-0.208***	-0.203***	-0.144***	-0.192***
	(-4.540)	(-4.410)	(-2.759)	(-4.384)
Constant	2.008***	2.022***	2.323***	2.184***
	(12.825)	(12.844)	(12.404)	(16.110)
Difference(ABSDAH- ABSDAL)				0.477***
F-test				(261.09)
N	6,211	6,211	6,211	6,211
R-squared	0.171	0.171	0.171	0.171
Firm Fixed effects	Yes	Yes	Yes	Yes

The table reports the relationship between policy uncertainty and earnings smoothness, measured by the standard deviation of pre managed earnings minus standard deviation of reported earnings. The definition of variables used in the pooled regression is reported in Table 1. The t-value estimated through clustered standard error is reported below the coefficient in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7: The impact of EPU on accruals reversals

The table reports the impact of policy uncertainty on accruals reversals. Panel A reports logit regression results, and Panel B reports the OLS regression results. The definition of variables used in the pooled regression is reported in Table 1. The t-value estimated through clustered standard error is reported below the coefficient in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Logit estimation			**Panel B: the OLS estimation**		
VARIABLES	**REV_DA**	**REV_DA**	**REV_DA**	**CREV_DA**	**CREV_DA**	**CREV_DA**
EPU Index	0.443***	0.491***	0.345***	0.041***	0.012	0.034***
	(7.463)	(3.252)	(4.491)	(6.951)	(1.494)	(4.462)
Good current performance		3.401***			-0.027	
		(4.159)			(-0.540)	
*EPU Index *Good current performance*		0.255**			0.033***	
		(2.439)			(3.028)	
*EPU Index *Abs(policy beta)*			0.029**			0.002
			(2.003)			(1.429)
Abs(policy beta)			-0.143**			
			(-2.163)			
Firm size	0.000	-0.000	0.000	-0.000	-0.000*	-0.000
	(1.105)	(-0.463)	(0.691)	(-1.581)	(-1.708)	(-1.620)
ROA	-0.501*	-5.468***	-0.552*	-0.030	-0.083***	-0.030
	(-1.647)	(-10.780)	(-1.772)	(-1.480)	(-4.260)	(-1.459)
Leverage	0.216*	-0.102	0.218*	-0.005	-0.010	-0.004
	(1.878)	(-0.718)	(1.890)	(-0.209)	(-0.424)	(-0.134)
Std cashflow	-0.360*	-0.366	-0.360*	-0.044	-0.053	-0.044
	(-1.701)	(-1.450)	(-1.703)	(-1.285)	(-1.606)	(-1.280)
Tobin q	0.024	-0.002	0.026	0.011***	0.008**	0.011***
	(1.278)	(-0.068)	(1.401)	(3.016)	(2.399)	(2.929)
Loss dummy	0.055	0.177**	0.054	0.017**	0.030***	0.017**
	(0.822)	(2.092)	(0.794)	(2.477)	(4.451)	(2.418)
Cash ratio	-0.655*	-0.080	-0.653*	-0.069	-0.023	-0.069
	(-1.831)	(-0.184)	(-1.813)	(-1.407)	(-0.498)	(-1.392)
Firm age	-0.095***	-0.095**	-0.100***	-0.126***	-0.104***	-0.125***
	(-2.738)	(-2.094)	(-2.868)	(-5.378)	(-4.698)	(-5.309)
FO	0.003**	0.003*	0.003**	0.001	0.001	0.001
	(2.223)	(1.805)	(2.350)	(1.616)	(1.345)	(1.612)
Constant	-3.066***	-4.070***	-2.575***	0.242***	0.252***	0.234**
	(-9.420)	(-5.582)	(-6.479)	(2.677)	(2.765)	(2.572)

N	9,560	9,560	9,560	9,560	9,560	9,560
Pseudo R2/R-squared	0.0105	0.137	0.011	0.16	0.19	0.16
Firm Fixed effects	No	No	No	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	No	No	No