Does management optimism promote earnings smoothing? Evidence from Japan

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Abstract

This study examines the relationship between managerial optimism and earnings smoothing among Japanese firms. Prior research, notably Bouwman (2014), indicates a positive link, yet the precise nature remains ambiguous. Differing from traditional stock option-based methods—which are uncommon in Japan—the authors adopt a novel measure of managerial optimism derived from managers' earnings forecasts relative to analyst consensus. Results confirm that managerial optimism generally encourages earnings smoothing but reveal a nonlinear, inverted U-shaped relationship. Managers exhibiting moderate optimism smooth earnings most extensively, while highly optimistic or pessimistic managers do so less frequently, challenging the presumed straightforward positive correlation. Excessive optimism, therefore, appears to weaken smoothing incentives. By highlighting psychological influences on accounting decisions, this study deepens our understanding of managerial behavior in financial reporting and offers valuable guidance for investors and regulators, underscoring the importance of managerial optimism when evaluating earnings management.

Keywords: Managerial Optimism, Earnings Smoothing

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1. Introduction

This study examines how managerial optimism affects earnings smoothing by focusing on Japanese companies. Earnings smoothing is a major research stream in the field of earnings quality. There is a growing body of research on the factors that drive managers to engage in earnings smoothing and the consequences thereof.

In this context, we examine the relationship between management optimism and earnings smoothing. The managerial optimism focused on in this study is related to the concept of excessive managerial confidence (Malmendier and Tate, 2005), and related research is being conducted mainly in Europe and the United States. The literature reports a positive relationship between managerial optimism and earnings smoothing (Bouwman, 2014). However, we believe that there is room for development and expansion of this research in the following three ways.

First, differences in the degree of optimism may have different effects on the earnings smoothing that is observed as a result. Bouwman (2014) explains the reason why she found a positive relationship between optimism and earnings smoothing as follows. As a premise, all types of managers potentially have a "smoothing incentive, " and it is predicted that the level of earnings they smooth is set more conservatively than the level of earnings they believe they can achieve. This is because they fear that they will not be able to achieve the "target earnings" they have set themselves (the "torpedo effect"). However, even in this prediction, optimistic managers will "unconsciously" set their target earnings higher, and as a result, the underestimation of target earnings due to optimistic bias will be offset. This enables smooth earnings to be reported.

Nevertheless, we believe that this situation is only possible to the extent that the effects of the "optimism bias" and the "under-incentive for leveling" (positive and negative effects on target earnings) are equal, and offset each other. In other words, if the degree of optimism bias is excessive, it will not balance out with the under-incentive, and smoothing will not work. Therefore, there is room for further improvement in the verification accuracy by measuring the degree of optimism.

Second, we highlight the potential for expanding the variables that measure managerial optimism and the advantages of obtaining variables due to Japan's institutional characteristics.

Bouwman (2014) uses a stock option-based indicator to measure managerial optimism. This is an indicator developed by Malmendier and Tate (2005), who assume that managerial optimism (and therefore, managerial optimism) exists in the manager in question by assuming that the manager does not exercise stock options (in-the-money stock options) that a normal manager would exercise from the perspective of risk aversion.

This type of variable is one of the major variables used in much of the literature on managerial overconfidence, but it has certain limitations. First, obtaining the data in non-American countries is difficult due to the availability of data on stock options held by managers. Second, the cut-off value is

used to determine “excess”; therefore, capturing the degree of overconfidence is not always possible.

Based on the above discussion, this study attempts to measure managerial optimism not as a binary variable but as a degree and examines the relationship between the degree of optimism and earnings smoothing. Specifically, instead of using a stock option-based indicator, we adopt an indicator based on managerial earnings forecasts, following Hilary et al. (2016). Subsequently, we first confirm whether the same trend as Bouwman (2014) (a positive relationship between optimism and smoothing) can be observed in Japanese companies and conduct verification considering segmentation based on the degree of optimism.

Third, we point out the possibility that the relationship found by Bouwman (2014) is due to the institutional environment in the United States. In particular, previous studies assume that earnings are smoothed conservatively to avoid the “torpedo effect” and “litigation costs”. However, the extent to which this is true in an economic environment where the punishment in the form of litigation risk is not necessarily large is an empirical issue.

The results of the analysis are as follows. First, the degree of earnings smoothing increases with the level of managerial optimism, which is consistent with Bouwman’s (2014) findings. Second, when sub-sampling is conducted based on the degree of managerial optimism, managers with moderate levels of optimism exhibit the highest degree of earnings smoothing.

This study makes three contributions. First, it contributes to the accumulation of research on the influence of psychological managerial traits on accounting behavior (earnings smoothing). It confirms that the findings of Bouwman (2014) remain valid within the Japanese economic environment when managers are compared based on whether they are optimistic. This enhances the generalizability of managerial optimism as a factor that influences earnings smoothing.

The second contribution of this study lies in enhancing the generalizability of optimism measurement indicators based on earnings forecasts. Instead of relying on stock option-based indicators, which have been widely used in prior research, this study adopts an indicator derived from earnings forecasts. This approach enables the conceptualization of the “degree of optimism” as a continuous variable. Furthermore, in the Japanese economic environment, where the disclosure of earnings forecasts is effectively mandated, data accessibility facilitates the expansion of the sample size used for analysis.

Third, this study expands the interpretability of the effects of optimism. Based on the discussions in Bouwman (2014), this study proposes that the relationship between optimism and earnings smoothing is not a simple linear relationship and obtains empirical results consistent with this hypothesis. This perspective is also related to the findings of Aghazadeh et al. (2018), who suggest that the impact of optimism on the cost of capital is nonlinear. Accordingly, this study demonstrates the potential for further investigation and theoretical development regarding how differences in the degree of optimism (or pessimism) influence managerial and accounting behaviors.

Finally, the implications of these empirical findings suggest that even if psychological traits are not direct determinants of specific managerial (or accounting) behaviors, their manifestation can influence such behaviors by amplifying or mitigating them. The idea that multiple opposing biases may offset each other, and that the extent of this offsetting effect may vary depending on national and institutional conditions, constitutes a fundamental input for future analyses of the determinants of managerial behavior and their economic consequences (evaluation).

This study is organized as follows. Section 2 reviews the existing literature. Section 3 formulates the research hypotheses, and Section 4 presents the research design. Section 5 reports the empirical results, followed by Section 6, which concerns robustness checks and additional analyses. Finally, Section 7 summarizes the findings, discusses their implications and limitations, and outlines future research directions.

2. Related literature

It has long been recognized that managers, on average, tend to smooth reported earnings across various situations[1]. In research on earnings smoothing, two major lines of inquiry have historically drawn significant attention: determinant analyses, which investigate what types of firms and managers engage in smoothing, and usefulness analyses, which examine whether earnings smoothing is beneficial for the objectives of financial reporting (i.e., decision-making) (Dechow et al., 2010). While usefulness analyses primarily strive to distinguish between information-driven and opportunistic smoothing by focusing on managers' motives, determinant analyses generally take a neutral stance on the usefulness of smoothing and seek to elucidate the characteristics of firms and managers that smooth earnings.

This study focuses on determinant analyses. Early studies in this domain often focused on firm-specific attributes; however, recent work has shifted attention to individual managers' contractual and personal characteristics. For instance, Healy (1985), and Bergstresser and Philippon (2006) analyze how executive compensation influences earnings smoothing; Klein (2002) and Bowen et al. (2008) examine board characteristics; and Ge et al. (2011) investigate managers' personal traits, such as age and educational background.

Furthermore, within the realm of personal managerial attributes, Bouwman (2014) stands out for examining optimism—a psychological factor. Earnings smoothing is frequently defined as an accounting action that minimizes noise in earnings and produces what management regards as a "normal" earnings trend[2]. The "normal" trend presumably depends on the manager's own forecasts of the firm's future performance; therefore, it is natural to expect optimism—an upwardly biased outlook

[1] For example, see Hepworth (1953), Lev and Kunitzky (1974), Ronen and Sadan (1981), Goel and Thakor (2003), Leuz et al. (2003), Lang et al. (2006), and Myers et al. (2007).
[2] See Ronen and Sadan (1981).

on future performance—to be closely related to earnings smoothing. Bouwman (2014) reports that managerial optimism fosters greater earnings smoothing[3], thereby underscoring the importance of managers' psychological traits as a determinant of smoothing.

On the contrary, Bouwman (2014) also leaves room for further refinement. Specifically, rather than testing an explicit hypothesis, this study shows that managerial optimism likely affects earnings smoothing based on a series of robustness checks, followed by a plausible explanation for these results. Given this research design, alternative interpretations of the observed findings cannot be definitively ruled out. Therefore, this study provides an overview of Bouwman's (2014) interpretation and explores alternative predictions. The next section presents hypotheses derived from these alternative views.

Bouwman (2014) interprets the finding that optimistic managers engage in greater earnings smoothing by invoking three interrelated elements: (I) a general smoothing incentive for all managers based on the so-called "torpedo effect," (II) an increase in smoothing targets for optimistic managers arising from their bullish forecasts of future earnings, and (III) an underestimation of litigation risk due to optimism regarding future performance. First, by drawing on Skinner and Sloan (2002), Bouwman (2014) documents the "torpedo effect," which missing an earnings benchmark by one unit is penalized more heavily by the market than exceeding it by one unit is rewarded. This asymmetry provides managers—both optimistic and otherwise—with an incentive to smooth earnings to reduce the possibility that short-term volatility will cause them to miss their earnings targets.

Next, Bouwman (2014) contends that because optimistic managers predict higher future earnings than rational managers, they set correspondingly higher smoothing targets. As a result, they are more likely to perceive pre-managed earnings as insufficient in many situations and thus engage in upward adjustments to meet these targets. Although larger earnings-increasing adjustments may trigger reversals that reduce earnings in subsequent periods, Bouwman (2014) concludes that such behavior leads to a greater degree of smoothing for optimistic managers.

The reversal effect operates in the medium to long term; therefore, there may be no noticeable difference in smoothing between optimistic and rational managers in the short run. Bouwman (2014) reconciles the observed average differences by pointing to litigation risk; specifically, the heightened penalties that may follow if earnings fall far short of the targets. If rational managers are more attuned to the risks of SEC actions or investor lawsuits, they may curtail smoothing activities to lower that risk. However, optimistic managers perceive a lower chance of missing targets, which reduces the suppressive effect of litigation risk on smoothing. Accordingly, Bouwman (2014) posits that rational managers mitigate such risk by reducing smoothing.

Of the three components in Bouwman's interpretation, evidence exists—both in the United States

[3] Moreover, Bouwman (2014) finds that managerial optimism is associated with smaller earnings surprises, and interprets these results to suggest that earnings smoothing facilitates easier earnings forecasting, thus reducing the size of earnings surprises.

and Japan—that some firms experience a torpedo effect[4]. Hence, this study assumes the presence of such an effect, which provides a common managerial incentive for smoothing regardless of optimism.

Conversely, the second and third explanatory factors in Bouwman (2014), involving optimistic forecasts and litigation risk, give rise to alternative predictions when viewed from the perspectives of (A) consistency with measures of smoothing and (B) consistency with the definition of optimism. First, although Bouwman (2014) argues that higher smoothing targets associated with optimistic forecasts lead to more smoothing, one could also predict the opposite. If, owing to the reversals of prior adjustments, optimistic managers tend to show disproportionately low earnings in bad times and high earnings in good times, the overall volatility of their reported earnings may be larger, not smaller, implying a lower degree of smoothing. Bouwman (2014) employs two volatility-based smoothing measures, following Leuz et al. (2003), Lang et al. (2006), and Myers et al. (2007). Against this backdrop, one could hypothesize that higher smoothing targets—driven by optimism—might generate greater earnings volatility in practice, thereby reducing smoothing.

Second, with respect to litigation risk, Bouwman (2014) proposes that rational managers curtail smoothing to avoid the possibility of large negative earnings surprises, whereas optimistic managers fail to do so because they underestimate the likelihood of substantial shortfalls. Reconsidering this in light of Bouwman's definition of optimism prompts a different perspective. Consistent with many previous studies, Bouwman (2014) defines overconfidence as an underestimation of the variance in signals and (excessive) optimism as an overestimation of the mean. By this definition, rational and optimistic managers would assume the same variance when predicting future earnings; therefore, their attitudes toward extreme downside risks, including litigation, should not differ. Bouwman (2014) further suggests that rational managers keep some "reserve" for unexpected shortfalls by reducing the extent of smoothing. However, managers can also achieve this aim by simply lowering their targets for smoothed earnings at the outset. In the latter scenario, maintaining slightly lower reported earnings for several periods could reduce external earnings expectations, thereby decreasing the likelihood of large negative earnings surprises.

In summary, the effect of managerial optimism on earnings smoothing can be understood as a confluence of three factors: (i) all managers face incentives to smooth due to the torpedo effect; (ii) optimistic managers' higher smoothing targets may paradoxically reduce their overall degree of smoothing by increasing earnings volatility; and (iii) concerns about litigation risk may prompt all

[4] In questionnaire-based analyses of firms' financial reporting strategies conducted by Graham et al. (2005), and Suda and Hanaeda (2008), it was found that companies frequently set prior-year earnings or their own (or analysts') earnings forecasts—often cited as benchmarks for expected earnings levels—as target earnings. By meeting these targets, firms anticipate receiving positive feedback from capital markets, such as maintaining or boosting stock prices and securing investor confidence. In addition, many companies (over half, at 56.1%, among Japanese firms) reported a willingness to sacrifice some portion of corporate value to meet these targets. This finding suggests that a nontrivial number of firms (i.e., those who sense a "torpedo effect") believe that the cost of reporting earnings below expectations outweighs the cost of sacrificing some corporate value.

managers to lower their smoothing targets. The next section clarifies how these predictions differ from Bouwman's (2014) account and sets forth the hypotheses that this study tests.

3. Hypothesis

Drawing on the predictions (i)–(iii) outlined above, it is possible that the results Bouwman (2014) reports reflect the inclusion of relatively pessimistic (or conservative) managers in the group deemed "rational." Indeed, studies such as Aghazadeh et al. (2018) highlight the potential for nonlinear (U-shaped or inverted U-shaped) effects of psychological traits such as overconfidence and optimism on corporate outcomes, suggesting that the relationship between managerial optimism and earnings smoothing may also be nonlinear. Aghazadeh et al. (2018)—similar to Bouwman (2014)—use an equity option–based measure of optimism[5] grounded in Malmendier and Tate (2005, 2008), and document a U-shaped association between optimism and the cost of capital. Their findings imply that investors adjust their assessments of business and information risks in response to the degree of managerial optimism. Specifically, capital costs are minimized at moderate levels of optimism; as optimism grows, distortions in investment and financing decisions—and the possibility of earnings management or accounting fraud—raise the cost of capital, indicating that mildly optimistic managers are most desirable.

Building on the evidence of a nonlinear link between optimism and corporate outcomes, this study argues that combining this perspective with mechanisms (i)–(iii) clarifies Bouwman's (2014) findings. If one conceptualizes managerial optimism as a continuous forecasting bias that can also take negative values, then pessimistic managers would, in effect, show the opposite pattern of earnings outcomes compared to optimistic managers—potentially elevating their volatility when performance is strong (due to reversals of prior downward adjustments) and weak (due to prior upward adjustments). This heightened volatility reduces the smoothing degree. Bouwman (2014) classifies managers as either "optimistic" or "rational" based on an equity option–based measure, "rational" necessarily includes relatively pessimistic managers. By pooling pessimistic and rational managers, the average degree of smoothing for the "rational" group may be artificially lowered.

Moreover, if greater optimism raises smoothing targets while litigation risk concerns cause all managers to reduce those targets, there may be an "ideal" level of optimism that balances the two forces, producing an effectively rational extent of smoothing. In this scenario, slightly optimistic managers might offer the most desirable outcome in terms of earnings smoothing: drifting away from moderate optimism—whether more or less—would reduce the degree of smoothing, creating an inverted U-shaped relationship between optimism and smoothing.

Taken together, one can interpret Bouwman's (2014) findings as consistent with a scenario in which

[5] While Aghazadeh et al. (2018) refer to the concept measured by this index as "managerial overconfidence," this study follows Bouwman (2014) and uses the term "optimism."

a moderately optimistic manager achieves the highest degree of smoothing. However, this inverted U-shaped relationship becomes less apparent when pessimistic managers are grouped with rational managers and compared with optimistic managers. To test this possibility, the following hypotheses are formulated:

H1: The more optimistic the manager, the higher is the degree of earnings smoothing.

H2: The relationship between managerial optimism and the degree of earnings smoothing follows an inverted U-shape.

Hypothesis 1 replicates Bouwman's (2014) approach. To test Hypothesis 2, however, we measure managerial optimism as a continuous variable rather than employing the binary classification used in Bouwman (2014). Consequently, we do not rely on equity option–based measures but instead use managers' own earnings forecast figures (details are provided in the next section). Moreover, to mitigate potential self-selection bias in managerial forecast disclosures, we use the data from Japan, where managers' earnings forecasts are mandatory. Given these differences in measurement and sampling from Bouwman (2014), the purpose of H1 is to confirm whether the overall tendency—that higher optimism correlates with greater smoothing—holds in the Japanese context. Hypothesis 2 then tests the core prediction that emerges from the above discussion.

4. Research Design

4.1. Proxy Variables

4.1.1 Proxy Variables for Optimism

This study develops a proxy variable for managerial optimism ($OPTIM\_MF_{i,t}$), inspired by Kothari et al. (2009) and Hilary et al. (2016), based on managerial earnings forecasts. This variable is calculated by subtracting the consensus analyst forecast of net income for period t, provided by the QUICK Consensus, from the managerial forecast at the beginning of period t and then dividing by the absolute value of the analyst forecast. Greater optimism is assumed if managerial forecasts exceed analysts' consensus.

While prior research, such as Malmendier and Tate (2005), typically measures managerial optimism and overconfidence using stock option holdings, this study employs performance forecast-based proxies. This approach offers three main advantages. (1) Continuous Measurement: The proxy provides a continuous variable, enabling the analysis of both the presence and degree of optimism. (2) Sample Bias Mitigation: Stock option-based proxies are often limited to firms with sufficient data, reducing the sample size compared with the broad availability of managerial earnings forecasts in

Japan due to mandatory disclosure (Ota, 2006). (3) Reduced Endogeneity: Managerial stock option holdings are closely related to earnings management incentives, which can confound analyses. Managerial earnings forecast-based measures reduce this risk.

This study leverages the widespread availability of managerial forecasts in Japan to provide a robust and representative analysis of managerial optimism.

4.1.2 Proxy Variables for Earnings Smoothing

The variable measuring the degree of earnings smoothing is constructed using three proxies based on prior research by Leuz et al. (2003), Lang et al. (2006), and Myers et al. (2007). The details of these proxies are as follows.

1. The first proxy is based on the idea that smoother earnings are associated with smaller variance in earnings changes. It uses the change in net income after taxes for period t (ΔNI), scaled by total assets at the end of the previous period (ΔNI / ASSETS), denoted as ΔNI / ASSETS. The five-year standard deviation of ΔNI / ASSETS, std (ΔNI / ASSETS), is first calculated. Then, a regression analysis is performed with the dependent variable as std (ΔNI / ASSETS) and independent variables including six firm fundamentals that may influence earnings smoothing: firm size (log of market capitalization at the end of period t), leverage (total liabilities divided by total assets), sales growth ($\Delta\text{Sales} / \text{Sales}_{t-1}$), debt issuance ($\Delta\text{Total Liabilities} / \text{Total Assets}_t$), equity issuance ($\Delta\text{Outstanding Shares} / \text{Outstanding Shares}_{t-1}$), and asset turnover ($\text{Sales}_t / \text{Total Assets}_t$). The residuals from this regression are used as the first earnings-smoothing proxy ($\text{SMOOTH\_NI}_{i,t}$). Lower residuals indicate a higher degree of earnings smoothing, which implies lower earnings volatility.
2. The second proxy posits that smoothed earnings exhibit lower volatility than cash flow volatility. This metric divides the standard deviation of $\Delta\text{NI}_{i,t} / \text{ASSETS}_{i,t}$ by the standard deviation of cash flow changes ($\Delta\text{CFO}_{i,t} / \text{ASSETS}_{i,t}$). Similar to the first proxy, we use the residuals from a regression that incorporates the same six firm fundamentals to calculate $\text{SMOOTH\_NICFO}_{i,t}$, which is the second proxy. A lower value indicates a greater degree of earnings smoothing.
3. The third proxy focuses on accruals for smooth earnings. This measures the correlation between accruals ($\text{ACC}_{i,t} / \text{ASSETS}_{i,t}$) and operating cash flows ($\text{CFO}_{i,t} / \text{ASSETS}_{i,t}$). Accruals are calculated as follows:

$$\text{ACC}_{i,t} = \Delta\text{CA}_{i,t} - \Delta\text{CASH}_{i,t} - \Delta\text{CL}_{i,t} + \Delta\text{STD}_{i,t} - \text{DEP}_{i,t}$$

Here, $\Delta\text{CA}_{i,t}$ represents the change in current assets, $\Delta\text{CASH}_{i,t}$ denotes the change in cash and

cash equivalents; $\Delta CI_{i,t}$ is the change in current liabilities; $\Delta STD_{i,t}$ refers to the change in short-term debt; and $DEP_{i,t}$ is the sum of depreciation expenses and impairment losses. The correlation corr(($ACC_{i,t}$ / $ASSETS_{i,t}$), ($CFO_{i,t}$ / $ASSETS_{i,t}$)) is computed using residuals from the regressions of $ACC_{i,t}$ / $ASSETS_{i,t}$ and $CFO_{i,t}$ / $ASSETS_{i,t}$ on the control variables. A more negative correlation suggests a higher level of earnings smoothing as managers would increase accruals to offset declines in cash flows, and decrease accruals when cash flows increase. We refer to this measure as $SMOOTH\_ACC_{i,t}$.

In all three proxies, smaller or more negative values reflect higher degrees of earnings smoothing, indicating that firms' earnings are less volatile relative to the underlying cash flows. These measures allow for a detailed examination of the degree and mechanisms of earnings smoothing within firms.

4.2 Model

Following Bouwman (2014), this hypothesis is tested using the following model:

$$\begin{aligned} SMOOTH_{i,t} = {} & \beta_0 + \beta_1 OPTIM_{i,t} + \beta_2 LN\_ASSETS_{i,t} + \beta_3 MB_{i,t} + \beta_4 LEV_{i,t} + \beta_5 ROA_{i,t} \\ & + \beta_6 RETAIN_{i,t} + \beta_7 TANGIBLE_{i,t} + \beta_8 BOARD_{i,t} \\ & + \beta_9 MO_{i,t} + \beta_{10} SO_{i,t} + Industry + Year + \varepsilon \qquad eq(1) \\ SMOOTH_{i,t} \in {} & \{SMOOTH\_NI_{i,t}, SMOOTH\_NICFO_{i,t}, SMOOTH\_ACC_{i,t}\} \\ OPTIM_{i,t} \in {} & \{OPTIM\_MF_{i,t} \text{ or } OPTIMISM\_D_{i,t}, PESSIMISM\_D_{i,t}\} \end{aligned}$$

Here, $SMOOTH_{i,t}$ is assigned one of the three proxies for the degree of earnings smoothing: $SMOOTH\_NI_{i,t}$, $SMOOTH\_NICFO_{i,t}$, or $MOOTH\_ACC_{i,t}$. The variable of interest is $OPTIM_{i,t}$, which is a proxy for managerial optimism. When verifying Hypothesis 1, the variable $OPTIM_{i,t}$ is assigned to $OPTIM\_MF_{i,t}$. When verifying Hypothesis 2, either $OPTIM\_MF_{i,t}$ or the set of $OPTIMISM\_D_{i,t}$ and $PESSIMISM\_D_{i,t}$ is assigned to the variable $OPTIM_{i,t}$. As described previously, higher values of $OPTIM\_MF_{i,t}$ indicate greater managerial optimism. Therefore, the positive coefficient β_1 suggests that greater managerial optimism corresponds to a higher degree of earnings smoothing.

The control variables are set according to Bouwman (2014). These include the natural logarithm of total assets ($LN\_ASSETS_{i,t}$) to represent firm size, the market-to-book ratio ($MB_{i,t}$), financial leverage ($LEV_{i,t}$), calculated as interest-bearing debt divided by total assets, and the return on assets ($ROA_{i,t}$), calculated as net income before tax divided by total assets. To control for the agency costs faced by firms, the retained earnings ratio ($RETAIN_{i,t}$) is included, defined as retained earnings divided by shareholder equity. According to DeAngelo et al. (2006), retained earnings tend to be monitored less effectively than paid-in capital, and firms with higher retained earnings are more likely to encounter agency problems.

To control for information asymmetry, the ratio of tangible fixed assets to total assets ($TANGIBLE_{i,t}$) is included. For the governance-related control variables, the number of board members ($BOARD_{i,t}$) is incorporated into the model.

Additionally, based on the findings of Bergstresser and Philippon (2006), who indicate that firms in which managerial compensation is more sensitive to stock prices are more likely to engage in earnings management, two variables are included: the managerial ownership ratio ($MO_{i,t}$) and a dummy variable ($SO_{i,t}$) that takes the value 1 if the firm has a stock option program and 0 otherwise.

Industry- and year-fixed effects are controlled for by including industry dummy variables (Industry) and year dummy variables (Year). Standard errors are corrected for clustering at the firm level. A table is provided to define the variables used in this study.

To verify Hypothesis 2, we examine the relationship between managerial optimism levels and the degree of earnings smoothing using two approaches.

First, $OPTIM\_MF_{i,t}$ is divided into terciles, and two dummy variables are created: $OPTIMISM\_D_{i,t}$, which equals 1 if $OPTIM\_MF_{i,t}$ is in the top tercile (high optimism) and 0 otherwise; and $PESSIMISM\_D_{i,t}$, which equals 1 if $OPTIM\_MF_{i,t}$ is in the bottom tercile (low optimism) and 0 otherwise. We substitute these dummy variables for $OPTIM\_MF_{i,t}$ in equation (1).

Second, the sample is divided into terciles based on $OPTIM\_MF_{i,t}$. The sample is categorized into a high optimism group (High_Optimism), middle optimism group (Middle_Optimism), and low optimism group (Low_Optimism). Equation (1) is then regressed separately for each group.

[Table 1 Insert Here]

4.3 Sample Selection and Descriptive Statistics

The analysis period covers the fiscal years from March 2014 to March 2023. The data used in this study were sourced from the Nikkei NEEDS Financial QUEST database provided by Nikkei Media Marketing Inc.

The sample includes firms that satisfy the following conditions:

1. All publicly listed companies in Japan and JASDAQ-listed firms.
2. Firms that do not belong to the “Banking,” “Securities,” “Insurance,” or “Other Financials” industries, based on the Nikkei medium industry classification.
3. Firms for which the necessary data for analysis are available.

The final sample comprised 12,139 firm-year observations. To address the potential influence of outliers, continuous variables have been winsorized at the top and bottom 0.5% of their distributions.

Table 2 summarizes the sample’s descriptive statistics for the key variables. These statistics provide an overview of data characteristics and variability. The descriptive statistics for $OPTIM_{i,t}$ reveal a mean value of -0.050 and a median value of -0.022, indicating that more than half of the managers

make earnings forecasts that are more conservative than the analysts' consensus. $SMOOTH\_ACC_{i,t}$, as noted above, represents the correlation coefficient between accruals and earnings. To align the interpretation with the degree of earnings smoothing (where higher values indicate greater smoothing), the values are multiplied by -1. Consequently, all variables take on negative values. A correlation matrix (Table 3) shows the relationships between the main variables. This matrix helps identify potential multicollinearity issues and offers preliminary insights into the associations among the variables.

The descriptive statistics and correlation matrix form the basis for understanding the structure of the sample and inform the robustness of the subsequent analysis.

[Table 2 Insert Here]

[Table 3 Insert Here]

5. Main Results

The table 4 presents the estimation results of Equation (1) for Hypothesis 1. Columns (1)–(3) display the results of the tests conducted with three different smoothing variables as the dependent variables. The variable of interest for hypothesis testing is $OPTIM\_MF_{i,t}$. Its coefficients show statistically significant negative values at the 1% level when the dependent variables are $SMOOTH\_NI_{i,t}$ and $SMOOTH\_NICFO_{i,t}$, and a significant negative value at the 10% level when the dependent variable is $SMOOTH\_ACC_{i,t}$. These findings suggest that optimistic managers engage in greater earnings smoothing, consistent with Bouwman (2014).

[Table 4 Insert Here]

Table 5 presents the results of the tests related to Hypothesis 2. To test this hypothesis, $OPTIM_{i,t}$ is divided into terciles. Table 5 employs the dummy variable $OPTIMISM\_D_{i,t}$, which takes a value of 1 if the sample belongs to the group with the highest managerial optimism, and $PESSIMISM\_D_{i,t}$, which takes a value of 1 if the sample belongs to the group with the lowest optimism.

Table 5 shows that the coefficient of $OPTIMISM\_D_{i,t}$ is statistically significant and negative at the 1% level when the dependent variable is $SMOOTH\_NI_{i,t}$, whereas it is negative but not significant for the other dependent variables. Additionally, the coefficient of $OPTIMISM\_D_{i,t}$ is statistically significant and negative at the 1% level for $SMOOTH\_NI_{i,t}$ and at the 5% level for $SMOOTH\_NICFO_{i,t}$, whereas it is insignificant for $SMOOTH\_ACC_{i,t}$.

These findings suggest that while some coefficients are not significant, there is a general evidence suggesting that both high and low levels of managerial optimism reduce the degree of earnings

smoothing compared to moderate levels of optimism.

[Table 5 Insert Here]

Next, we examine the estimation results by dividing the sample into three subsamples based on $OPTIM\_MF_{i,t}$ (Pessimistic, Neutral, and Optimistic samples). In the pessimistic sample, the coefficient of $OPTIM\_MF_{i,t}$ is positively significant at the 1% level when the dependent variables are $SMOOTH\_NI_{i,t}$ and $SMOOTH\_NICFO_{i,t}$, and at the 10% level for $SMOOTH\_ACC_{i,t}$. On the contrary, for the optimistic sample, the coefficients of $OPTIM\_MF_{i,t}$ are negative across all dependent variables, although only $SMOOTH\_NICFO_{i,t}$ is statistically significant. For the neutral sample, the coefficients of $OPTIM\_MF_{i,t}$ are insignificant for all the dependent variables (Table 6).

Combining these findings with the previous results, the relationship between managerial optimism and the degree of earnings smoothing does not exhibit a positive linear trend, as suggested by Bouwman (2014). Instead, the results indicate a reverse U-shaped relationship: while managerial pessimism is associated with a positive relationship with earnings smoothing, the degree of smoothing peaks at moderate levels of optimism and declines when optimism becomes excessive.

[Table 6 Insert Here]

6. Robustness

6.1. Addressing analyst consensus sample bias

The sample in this study uses managerial earnings forecasts as a proxy for managerial optimism instead of stock-option-based indicators, as in prior research (e.g., Bouwman, 2014). This approach enables the inclusion of a broader sample size and addresses the issue of sample bias. However, because this study relies on analyst consensus, sample bias may arise depending on whether a firm is covered by analysts. To address this potential bias, we employ Heckman's two-step correction method.

In the initial step, a probit regression is conducted with a dummy variable as the dependent variable, which equals 1 if QUICK analyst consensus data are available and 0 otherwise. The explanatory variables include determinants of analyst coverage: the natural logarithm of total assets (LN_ASSET) as a proxy for firm size, return on assets (ROA) as a proxy for profitability, the standard deviation of operating cash flows over the past five years (σ(CFO)) as a measure of business risk, the ratio of R&D expenses to sales (R&D / Sales) as a proxy for intangible assets, and the institutional ownership ratio (Institutional Ownership). The inverse Mills ratio is calculated using the estimates obtained from this regression.

In the second step, the IMR is included as an explanatory variable in the regression model for equation (1) to account for potential bias and verify robustness. To avoid multicollinearity issues

arising from using the same explanatory variables in both steps, LN_ASSET and ROA are excluded from the second-step regression model. This approach effectively addresses the potential bias associated with analyst coverage and enhances the robustness of the results.

The table 6 presents the results of the second-stage estimation process. The coefficient of the continuous variable $OPTIM\_MF_{i,t}$ in the upper section is insignificant when the dependent variable is $SMOOTH\_ACC_{i,t}$, but it aligns with the primary test results. Similarly, the coefficients of the optimism/pessimism dummies based on the terciles of $OPTIM\_MF_{i,t}$, displayed in the lower section, are consistent with those of the main analysis. These findings indicate that, even after addressing sampling bias based on analyst consensus, managerial optimism correlates with a higher degree of earnings smoothing. However, consistent with the primary results, extreme optimism reduces the extent of smoothing, whereas moderate optimism is associated with the highest level of earnings smoothing.

[Table 7 Insert Here]

6.2. Controlling managerial ability

Demerjian et al. (2013) and Baik et al. (2020) demonstrate that high-ability managers tend to enhance corporate performance predictability by effectively utilizing earnings smoothing. Furthermore, personal managerial characteristics, such as overconfidence, influence corporate investment and financial behavior (e.g., Malmendier and Tate, 2005), which may relate to managerial ability. Thus, controlling for managerial ability, which can simultaneously influence managerial optimism and earnings smoothing behavior, allows us to analyze the robustness of this study's primary examination.

Managerial ability is estimated based on Demerjian et al. (2013) as follows. In the first stage, Data Envelopment Analysis (DEA) is conducted for each industry, where the output is sales, and inputs include tangible fixed assets, leased assets, capitalized R&D expenditures, intangible assets, inventory and selling, and general and administrative expenses. Efficiency is estimated as the distance to the efficient frontier, which represents the maximum output for given inputs. All the continuous variables are deflated by total assets. In the second stage, the dependent variable is the efficiency score of each firm, and the independent variables include the natural logarithm of total assets, industry market share, free cash flow divided by total assets, firm age, and a dummy variable indicating international operations. A regression is performed to remove the influence of firm-specific characteristics. The residuals from this regression, which exclude firm-specific factors from firm efficiency, are used as a measure of managerial ability.

The calculated managerial ability (MA_SCORE) is incorporated as a control variable into equation (1), and the estimation results are presented in the table. The coefficients of the variables related to

managerial optimism are consistent with those of the primary examination, indicating that the findings remain robust even after controlling for managerial ability.

[Table 8 Insert Here]

6.3 Measuring CEO tendencies regarding optimism

In the primary analysis, the deviation between managerial earnings forecasts and analyst consensus for a single fiscal year is used as a proxy variable for managerial optimism. Although this method enables the annual measurement of the degree of optimism, it does not effectively capture the inherent tendencies of individual managers toward optimism. To address this limitation and enhance the robustness of the main findings, as employed by Kaplan et al. (2022) and others, the average value of $OPTIM\_MF_{i,t}$ for each manager or firm is calculated to better capture individual managerial tendencies toward optimism. Although the results are omitted here, they generally align with those obtained in the primary analysis.

7. Conclusion

This study empirically examines the relationship between managerial optimism and the degree of earnings smoothing. Previous research in the United States observed a positive relationship between these two factors (Bouwman, 2014). However, the degree of earnings smoothing may vary, depending on the level of managerial optimism. Furthermore, given that the institutional and economic conditions in Japan differ from those in the United States—particularly with respect to factors such as litigation risk, which is considered to function as a constraint that encourages downward earnings forecasts—whether similar trends can be observed in Japan remains an empirical question.

Building on Bouwman's (2014) discussion, this study examines the relationship between the degree of managerial optimism and earnings smoothing using managerial earnings forecasts as a proxy variable for measuring optimism.

The results of the analysis are as follows. First, consistent with Bouwman (2014), we observe a positive relationship between managerial optimism and the degree of earnings smoothing. Second, when managerial optimism was classified by degree, it was found that the earnings reported by managers with a moderate level of optimism exhibited the highest degree of earnings smoothing.

The findings of this study are expected to contribute to the literature in three ways. First, by examining the relationship between managerial psychological traits and specific accounting behaviors (earnings smoothing) using a Japanese sample, this study enhances the generalizability of the empirical research in this field.

Second, it contributes to the applicability and adaptability of proxy variables by using earnings forecasts as a measure of managerial optimism, which has been less explored in the literature. In

particular, we consider this study valuable as it enables the measurement of managerial optimism even in non-U.S. contexts, where acquiring stock option-based variables is difficult, and further allows for the assessment of the degree of optimism.

Third, although the overall findings of this study align with prior research, they also suggest a nonlinear relationship between the degree of optimism and the extent of earnings smoothing. This highlights the necessity of capturing differences arising from a combination of institutional and environmental factors and emphasizes the importance of accumulating research in contexts with different institutional environments.

However, this study has certain limitations. In the Japanese context, obtaining stock option-based data to measure optimism is challenging. To overcome this limitation, this study employs a variable based on earnings forecasts, which, as previously discussed, provides additional benefits. Nevertheless, as more data become available, it will be necessary to re-evaluate whether Bouwman's (2014) replication remains valid.

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Table

Table 1 Variables Definition

Variables	Definition
$SMOOTH\_NI_{i,t}$	Proxy variables for earnings smoothing (see section 4.1.2).
$SMOOTH\_NICFO_{i,t}$	Proxy variables for earnings smoothing (see section 4.1.2).
$SMOOTH\_ACC_{i,t}$	Proxy variables for earnings smoothing (see section 4.1.2).
$OPTIM_{i,t}$	Management's forecast for net income minus the analyst consensus forecast divided by the absolute value of the analyst consensus forecast.
$LN\_ASSETS_{i,t}$	Natural logarithm of total assets.
$MB_{i,t}$	Ratio of book value to market value.
$LEV_{i,t}$	Financial leverage as interest-bearing debt divided by total assets.
$ROA_{i,t}$	Ratio of income before income taxes to total assets.
$RETAIN_{i,t}$	Retained earnings divided by shareholders' equity.
$TANGIBLE_{i,t}$	Property, plant and equipment divided by total assets.
$BOARD_{i,t}$	the number of board members.
$MO_{i,t}$	management shareholding ratio.
$SO_{i,t}$	Dummy variable that takes 1 if you have a stock option plan and 0 otherwise.
$MA\_SCORE_{i,t}$	Proxy variables for managerial capabilities based on Demerjian et al. (2013).

Table 2 Descriptive Statistics

Variables	Mean	SD	Min	p25	p50	p75	Max
$SMOOTH\_NI_{i,t}$	0.005	0.049	-0.353	-0.003	0.018	0.031	0.063
$SMOOTH\_NICFO_{i,t}$	0.091	0.749	-4.356	-0.108	0.284	0.548	0.959
$SMOOTH\_ACC_{i,t}$	-0.785	0.172	-0.984	-0.904	-0.816	-0.710	-0.310
$OPTIM_{i,t}$	-0.050	0.295	-1.995	-0.074	-0.022	0.005	1.000
$LN\_ASSETS_{i,t}$	11.496	1.888	6.098	10.208	11.510	12.768	15.323
$MB_{i,t}$	2.354	2.636	0.237	0.911	1.406	2.554	13.876
$LEV_{i,t}$	0.450	0.192	0.079	0.297	0.446	0.593	0.951
$ROA_{i,t}$	0.076	0.067	-0.288	0.040	0.068	0.104	0.286
$RETAIN_{i,t}$	0.641	0.400	-4.634	0.539	0.716	0.845	1.108
$TANGIBLE_{i,t}$	0.258	0.182	0.003	0.116	0.236	0.368	0.798
$BOARD_{i,t}$	8.925	2.894	3.000	7.000	9.000	11.000	18.000
$MO_{i,t}$	0.063	0.123	0.000	0.000	0.004	0.050	0.584
$SO_{i,t}$	0.358	0.480	0.000	0.000	0.000	1.000	1.000

Table 3 Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
$SMOOTH\_NI_{i,t}$	(1)		0.563	-0.008	0.041	0.000	-0.115	0.112	-0.015	0.077	-0.031	0.071	0.020	-0.041
$SMOOTH\_NICFO_{i,t}$	(2)	0.469		0.012	0.058	-0.204	-0.236	-0.079	0.057	0.125	0.102	0.001	0.137	-0.101
$SMOOTH\_ACC_{i,t}$	(3)	0.008	0.041		0.027	0.035	-0.057	0.019	-0.047	-0.004	0.062	0.031	-0.039	-0.009
$OPTIM_{i,t}$	(4)	0.059	0.076	0.011		-0.017	-0.079	-0.021	0.031	0.054	-0.007	0.002	0.011	-0.021
$LN\_ASSETS_{i,t}$	(5)	-0.022	0.046	0.041	0.030		-0.217	0.322	-0.320	0.071	0.261	0.495	-0.639	-0.129
$MB_{i,t}$	(6)	-0.079	-0.285	-0.066	-0.047	-0.274		-0.075	0.522	0.047	-0.288	-0.119	0.204	0.249
$LEV_{i,t}$	(7)	0.053	0.000	0.016	-0.043	0.338	-0.056		-0.440	-0.324	0.195	0.184	-0.169	-0.014
$ROA_{i,t}$	(8)	0.043	0.069	-0.020	0.124	-0.254	0.383	-0.354		0.346	-0.267	-0.159	0.256	0.115
$RETAIN_{i,t}$	(9)	0.131	0.301	0.024	0.084	0.135	-0.128	-0.179	0.436		-0.077	0.060	0.044	-0.067
$TANGIBLE_{i,t}$	(10)	-0.007	0.147	0.046	-0.009	0.273	-0.259	0.231	-0.239	0.014		0.214	-0.188	-0.168
$BOARD_{i,t}$	(11)	0.041	0.096	0.043	0.021	0.497	-0.151	0.192	-0.126	0.101	0.239		-0.320	-0.138
$MO_{i,t}$	(12)	-0.016	-0.189	-0.077	-0.036	-0.449	0.311	-0.054	0.226	-0.021	-0.196	-0.267		0.170
$SO_{i,t}$	(13)	-0.018	-0.124	-0.001	-0.040	-0.141	0.238	-0.014	0.088	-0.106	-0.160	-0.125	0.219	

Pearson's correlations appear below the diagonal; Spearman's correlations appear above the diagonal.

Table 4

Main Results：Managerial optimism and earnings smoothing

	(1)	(2)	(3)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$OPTIM\_MF_{i,t}$	0.114***	0.005**	0.008*
	(3.86)	(2.38)	(1.86)
$ROA_{i,t}$	0.434*	0.087***	-0.096***
	(1.72)	(3.59)	(-2.87)
$LN\_ASSETS_{i,t}$	-0.058***	-0.004***	0.002
	(-5.84)	(-5.66)	(1.55)
$LEV\_ASSETS_{i,t}$	0.301***	0.020***	0.000
	(3.23)	(3.30)	(0.05)
$MB_{i,t}$	-0.037***	-0.006***	0.002**
	(-5.17)	(-8.86)	(2.15)
$RETAIN_{i,t}$	0.247***	0.028***	0.025***
	(5.53)	(6.84)	(5.18)
$TANGIBLE_{i,t}$	-0.062	0.032***	0.018*
	(-0.71)	(6.23)	(1.88)
$BOARD_{i,t}$	0.011**	0.001***	0.001***
	(2.48)	(2.83)	(3.18)
$MO_{i,t}$	-0.344***	-0.088***	-0.076***
	(-2.59)	(-5.29)	(-4.10)
$SO_{i,t}$	0.004	-0.002	-0.006**
	(0.13)	(-1.39)	(-2.14)
Constant	0.295**	0.018*	-0.814***
	(2.44)	(1.79)	(-61.12)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
Observations	11,456	11,561	12,139
R-squared	0.107	0.248	0.448

*** p<0.01, ** p<0.05, * p<0.1, Robust t-statistics in parentheses.

Table5

Main Results：The degree of managerial optimism and earnings smoothing (dummy)

	(4)	(5)	(6)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$PESSIMISM\_D_{i,t}$	-0.066***	-0.001	-0.001
	(-3.58)	(-1.17)	(-0.27)
$OPTIMISM\_D_{i,t}$	-0.052***	-0.003**	0.003
	(-2.78)	(-2.37)	(0.90)
$ROA_{i,t}$	0.472*	0.090***	-0.088***
	(1.89)	(3.70)	(-2.65)
$LN\_ASSETS_{i,t}$	-0.060***	-0.004***	0.002
	(-6.05)	(-5.68)	(1.63)
$LEV\_ASSETS_{i,t}$	0.313***	0.020***	0.000
	(3.33)	(3.36)	(0.04)
$MB_{i,t}$	-0.039***	-0.006***	0.002**
	(-5.36)	(-9.01)	(2.14)
$RETAIN_{i,t}$	0.248***	0.028***	0.025***
	(5.52)	(6.80)	(5.16)
$TANGIBLE_{i,t}$	-0.064	0.032***	0.018*
	(-0.74)	(6.20)	(1.90)
$BOARD_{i,t}$	0.011**	0.001***	0.001***
	(2.48)	(2.85)	(3.17)
$MO_{i,t}$	-0.343***	-0.088***	-0.076***
	(-2.59)	(-5.30)	(-4.11)
$SO_{i,t}$	0.001	-0.002	-0.006**
	(0.04)	(-1.47)	(-2.16)
Constant	0.361***	0.021*	-0.817***
	(2.96)	(1.95)	(-57.39)
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
Observations	11,456	11,561	12,139
R-squared	0.106	0.247	0.448

*** p<0.01, ** p<0.05, * p<0.1, Robust t-statistics in parentheses.

Table 6

Main Results：The degree of managerial optimism and earnings smoothing (Subsampling)

		$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
		Coefficients of $OPTIM\_MF_{i,t}$		
Sample				
Pessimistic	$OPTIM\_MF_{i,t}$	0.232***	0.016***	0.009*
		(5.15)	(4.77)	(1.66)
Neutral	$OPTIM\_MF_{i,t}$	0.462	0.002	-0.069
		(0.45)	(0.03)	(-0.36)
Optimistic	$OPTIM\_MF_{i,t}$	-0.082	-0.013***	-0.005
		(-1.26)	(-2.69)	(-0.55)
Controls		Yes	Yes	Yes
Industry Dummy		Yes	Yes	Yes
Year Dummy		Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1, Robust t-statistics in parentheses.

Table 7

Robustness Test Results：Addressing sample selection bias.

Continuous Variables

	(7)	(8)	(9)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$OPTIM\_MFD_{i,t}$	0.131***	0.007***	0.003
	(5.47)	(5.37)	(0.72)
$MILLS_{i,t}$	0.583	0.007	-0.0023
	(3.51)***	(7.03)***	(-0.79)
Controls	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	27,816	27,895	28,227

Dummy

	(10)	(11)	(12)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$PESSIMISM\_D_{i,t}$	-0.060***	-0.002	0.000
	(-3.47)	(-1.60)	(0.01)
$OPTIMISM\_D_{i,t}$	-0.040**	-0.002**	0.001
	(-2.26)	(-2.11)	(0.48)
$MILLS_{i,t}$	0.058	0.007	-0.003
	(3.43)***	(6.83)***	(-0.91)
Controls	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
N	27,816	27,895	28,227

*** p<0.01, ** p<0.05, * p<0.1, Robust t-statistics in parentheses.

Table 8

Robustness Test Results：Controlling managerial ability

Continuous Variables

	(13)	(14)	(15)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$OPTIM\_MFD_{i,t}$	0.113***	0.005**	0.007*
	(3.85)	(2.38)	(1.77)
$MA\_SCORE_{i,t}$	-0.026	0.015	0.153***
	(-0.08)	(0.97)	(4.41)
Other Controls	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
R-squared	0.107	0.246	0.450
Observations	11,454	11,559	12,135

Dummy

	(16)	(17)	(18)
Dependent Variables	$SMOOTH\_NI_{i,t}$	$SMOOTH\_NICFO_{i,t}$	$SMOOTH\_ACC_{i,t}$
$PESSIMISM\_D_{i,t}$	-0.066***	-0.001	-0.000
	(-3.57)	(-1.17)	(-0.15)
$OPTIMISM\_D_{i,t}$	-0.052***	-0.003**	0.003
	(-2.79)	(-2.37)	(0.87)
$MA\_SCORE_{i,t}$	-0.022	0.016	0.153***
	(-0.07)	(1.02)	(4.39)
Controls	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes
R-squared	0.106	0.246	0.450
Observations	11,454	11,559	12,135

*** p<0.01, ** p<0.05, * p<0.1, Robust t-statistics in parentheses.