Tone Management

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Abstract

We investigate whether firms manage the tone of the words in earnings press releases and how investors react to tone management. We estimate abnormal positive tone ($ABTONE$) after controlling for firm characteristics related to fundamentals such as earnings, risk, and complexity. We find that $ABTONE$ contains negative information about future firm fundamentals one to three-years ahead. $ABTONE$ is associated with a higher incidence of meeting/beating earnings thresholds (past earnings levels, zero earnings, and analysts’ consensus forecasts), and future earnings restatements, SEO or M&A, but a lower incidence of stock option grants. Finally, $ABTONE$ is positively related to the immediate stock price reaction to earnings announcements and negatively to the one and two-quarter delayed reaction. All of the results are incremental to abnormal accruals. Overall, the evidence is consistent with strategic tone management that disinforms investors about firm future fundamentals.

Key words: Tone management, qualitative disclosure, earnings management, market efficiency, behavioral finance
I Introduction

The tone of the qualitative text in earnings press releases may sometimes be too optimistic or pessimistic relative to concurrent disclosures of quantitative performance. We call the choice of the tone level in qualitative text that is incommensurate with the concurrent quantitative information tone management. We investigate whether managers employ tone management for strategic purposes, and whether the market discounts for these motives in reacting to earnings announcements.

Quantitative information by itself provides investors with an incomplete picture of the firm’s economic circumstances. For quantitative information to be used, investors need to first encode the information and then process it (Fiske and Taylor 1991). Investors rely on the rhetoric employed in the qualitative text accompanying the quantitative disclosures in earnings press releases both to encode and process the information, and potentially as an additional source of information. Tone affects how readers respond to the communication; as the old adage goes, “It’s not what you say it’s how you say it.”

Rhetoric is a value-neutral tool that “in the hands of persons of virtuous or depraved character … can cause great benefits as well as great harms” (Rapp 2010). Similarly, tone management can be a means for managers to exploit investor biases and limited attention either to improve understanding of, or to obscure, firm fundamentals. Therefore, the primary goal for this paper is to test whether tone management in earnings press releases informs or disinform investors. In this paper, we measure tone management using abnormal positive tone (see later) and examine how abnormal positive tone predicts

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future firm fundamentals, how abnormal positive tone in earnings press releases of firms are related to strategic incentives of managers, and how investors react to tone management at earnings announcement and in the longer period after the earnings announcement.

The vast preponderance of capital markets research in accounting studies quantitative information reported by firms. However, there is growing interest to study the qualitative aspects of various firm communications with investors, such as particular sections of 10-K reports, earnings press releases, and conference calls. We focus on tone management in earnings press releases for several reasons. Earnings press releases make up a large sample of news events about the firm that are consistently more timely and significant than the financial reports to the S.E.C. Furthermore, greater discretion about content and format is afforded by these voluntary disclosures than by the mandatory 10-K reports. The trading volume and stock price reactions generally are larger around earnings announcements than at any other time in the year (except for special event announcements).

Tone optimism and pessimism has been measured in various ways in the existing literature (see Section 2). We use Loughran and Macdonald’s (2011) classification of positive versus negative words because it is developed specifically for accounting reports and business purposes. We calculate net optimism as the difference in the frequency of positive and negative words in earnings press releases. Crucially, in contrast to past literature, we distinguish between normal positive and abnormal positive tone. We

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2 Li (2011) provides an excellent comprehensive review of recent tone-related papers in the accounting literature, including some very early papers. Section II discusses previous literature.
expect that various economic factors drive optimism in tone of earnings press releases. A neutral tone in the qualitative description of good current economic performance or high growth opportunities is likely conveyed using more optimistic words than a neutral description of bad economic performance or low growth opportunities. Therefore we estimate abnormal positive tone relative to a benchmark model for tone that controls for firm performance, growth, risk, and complexity proxies. Abnormal positive tone therefore captures effects that are orthogonal to the underlying fundamentals.\(^3\)

We first examine whether abnormal positive tone contains information about future firm financial performance. If managers use discretion in tone to reveal meaningful positive information about the firm’s future prospects, we hypothesize that abnormal positive tone will be associated with high future earnings or cash flows after controlling for current reported quantitative information, and vice versa.

To understand this hypothesis, consider for example the following alternative circumstances, bearing in mind that owing to reliability issues, GAAP constrains the ability of the firm to recognize all relevant information about future revenues before completing the economic transactions. Suppose first that a firm that enjoys a surge in order backlogs, so that the reported number for current revenues underestimates future revenues, could employ an optimistic tone in the earnings press release commensurate with the anticipated higher future revenues, although not the current revenues. Therefore, adoption of a tone level that is more optimistic relative to the reported current financial

\(^3\) There is an obvious analogy between normal/abnormal tone and non-discretionary/discretionary accruals. Abnormal positive tone may capture managerial discretion on tone, managerial disclosure style, or simply noise. In the paper, we test whether abnormal positive tone is related to managerial incentives which drive tone choice.
performance numbers can be used to reveal positive information about future fundamentals.

Alternatively, managers may use discretion in tone to hype the firm beyond the level justified by underlying fundamentals and/or to mask poor future prospects. In this case, abnormal positive tone would be associated with no/poor future earnings or cash flows after controlling for current quantitative information.

In our sample, the evidence supports the latter case; abnormal positive tone in the earnings press release is associated with poor future earnings and operating cash flows in each of one-year to three-year ahead periods. The negative relation between abnormal positive tone and future performance is incremental to the effect of abnormal accruals. The abnormal positive tone may put the firm at risk of liability from a future lawsuit. However, words are much more elastic than numbers in conveying an impression, and correspondingly are harder to regulate and litigate against. As a result, the tone of qualitative text affords greater discretion than quantitative financial disclosures and therefore presents the opportunity to disinform investors as long as there is no patent falsehood.

The incentive to disinform investors may stem from a desire by managers for prestige, or from pecuniary motives associated with agency problems. Therefore, we investigate whether tone is abnormally positive in various settings that past literature has found to be associated with managerial incentives to manipulate investor perceptions

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4 Rogers, Van Burskirk and Zechman (2011) write that courts have ruled on either side of puffery in the language of the qualitative text of firm communications. They find evidence that optimistic disclosure tone increases litigation risk, especially when insiders sell the firm’s equity.
either upwards or downwards. Specifically, we examine whether abnormal positive tone is more frequent in firms that just meet or beat various earnings thresholds in the contemporaneous period (Burgstahler and Dichev 1997), and prior to earnings restatements (Phillips, Pincus and Rego 2003) and major corporation transactions such as seasoned equity offerings (Teoh, Welch, and Wong 1998), mergers and acquisitions (Erickson and Wang 1999), and large stock option grants (Aboody and Kasznik 2000; Baker, Collins, and Reitenga, 2003). Since past literature suggests that these settings reflect the presence of earnings management, we control for abnormal accruals to extract the incremental effect of abnormal tone.

We find that abnormal positive tone in earnings press releases increases the likelihood that the disclosed earnings of that period just meets or beats past earnings and analysts’ consensus forecast, is more likely to be associated with a small profit than a large profit, and is more likely to result in a subsequent earnings restatement. Consistent with tone management being stronger when incentives to manage investor perceptions exist, we also find that abnormal tone is, on average, more positive when firms are issuing new equity or undertaking mergers and acquisitions, and more negative when granting stock options. Therefore, the evidence suggests that when strategic motives cause managers to hype or depress their firms’ image, they manipulate tone in addition to managing accruals.

In the final set of tests, we examine whether investors understand that abnormal positive tone contains negative information about future fundamentals, and that optimistic tone management is associated with various strategic settings. We examine investor response to contemporaneous tone management immediately upon earnings
announcement, and over the subsequent one and two quarters after earnings announcement. If abnormal optimistic tone incites investor optimism beyond the level warranted by future fundamentals and investors discount insufficiently for strategic motives, the immediate market reaction to abnormal positive tone will be positive. As information about poor fundamentals (e.g. cash flows or earnings) is revealed in subsequent financial reports, there is a return reversal and so the delayed reaction to abnormal positive tone will be negative.5

Our evidence indicates that abnormal positive tone is associated with a more positive immediate market response to the earnings announcement and a more negative market response in one and two quarters subsequent to the announcement. This reversal of the incremental effect of tone in the longer post-announcement period is in sharp contrast with the continuation of the market response to earnings, i.e., post-earnings announcement drift, documented in prior literature for extreme news firms.6 As in the previous tests, we control for abnormal accruals and so the effects are incremental to the accrual anomaly. Overall, the evidence is consistent with managers using tone management as a complement to earnings management to disinform investors.

5 See Hirshleifer, Lim and Teoh (2011 forthcoming) for a model of immediate and delayed investor response to news when investors have limited attention. Investors underreact to news so that the initial response is muted and there is a post-announcement drift in the same direction as the initial response.

6 It is crucial in tests of the effect of abnormal positive tone to control for discretionary accruals and other quantitative performance information. Such controls are necessary to ensure that the relation between tone effects and return performance is not a spurious consequence of a correlation between abnormal positive tone and current performance or earnings management (accruals). Such correlation could easily occur if firms use both accrual and tone management when the motive to influence investor perceptions is present. Since accruals have been shown to predict future returns, they must be controlled for to avoid mistaken inferences.
II Background

There is growing research in the empirical capital markets area in accounting and finance using the textual analysis of qualitative information. These papers vary by the disclosure medium, the measure for the qualitative characteristic, and outcomes that are investigated. The disclosure medium include media news (Tetlock 2007; Tetlock, Saar-Tsechansky and Macskassy 2008), annual report/10-K/10-Q filings (Li, 2008 and 2010), earnings press releases (Davis, Piger and Sedor 2011; Demers and Vega 2011), analyst reports (De Franco, Hope, Vyas and Zhou, 2011; Hsieh and Hui 2011; Huang, Zang and Zheng, 2011; Lehavy, Li and Merkley 2011) and conference calls (Larker and Zakolyukina 2010; Frankel, Mayew and Sun 2010). The different approaches to measure qualitative information include computational linguistics such as naïve Bayesian algorithm (Li 2010; Huang et al. 2011), psychological dictionaries such as General Inquirer and Diction (Kothari, Li, Short 2009), and financial-customized word lists (Loughran and McDonald 2011; Henry 2008). The various qualitative dimensions of the disclosures that have been studied include positive vs. negative tone (Davis et al. 2011; Demers and Vega 2011; Frankel et al. 2010), readability (Li 2010; Hsien and Hui 2011) and self-reference bias (Larcker and Zakolyukina (2010).

With regards to outcomes investigated, several papers examine analysts’ response to the qualitative dimension of disclosures. Using a measure of the readability of corporate 10-K filings, Lehavy et al. (2011) document that analyst following and informativeness of their reports are greater for firms with less readable 10-Ks. Kravet and Muslu (2011) find that increases in risk disclosures are associated with increases in the number of analyst earnings forecasts and revisions, and in the dispersion of forecasts.
Another group of studies investigates the stock market reactions to disclosure characteristics. Davis et al. (2011) and Demers and Vega (2011) document a positive relation between increase in tone optimism of earnings press releases and the immediate stock price response to earnings announcements. Bonsall, Bozanic, and Fischer (2011), however, find a positive relation only if quantitative earnings guidance is not provided in the earnings release. Hsieh and Hui (2011) find that the market reacts more favorably towards analyst reports that are easier to read. In a similar vein, De Franco et al. (2011) find that stock trading volume is higher for firms with more readable analyst reports. Campbell, Chen, Dhaliwai, Lu and Steele (2011) document that the market incorporates information in disclosures about risk factors. The relation between tone and future stock returns is also found to be positive for news media articles (Tetlock 2007), and MD&A section of 10-K/10-Q (Feldman, et al., 2009). Demers and Vega (2011) report a positive relation between future returns and change in tone of earnings press releases.

Some studies examine whether the manager uses tone in qualitative disclosures to convey information about firm fundamentals. For example, Li (2008) finds that firms with lower earnings have less readable annual reports, and that readability increases with earnings persistence in firms that are profitable. He concludes that managers report tone strategically, consistent with an obfuscation incentive to mask a lower level or lower persistence of earnings. Our study considers managerial opportunistic behavior, and so is similar in spirit. Larcker and Zakolyukina (2010). They measure corporate executive answers to questions raised at quarterly earnings conference calls on a deceptiveness dimension using linguistics classifications to identify deceptive reporting behaviors of corporate executives. Their models outperform a random classifier by 4% to 6% and
predict accounting manipulations better than a model based on discretionary accruals. Tama-Sweet (2010) investigates whether managers change the tone of earnings press releases to increase the value of their stock options and finds that managers increase optimistic tone prior to option exercises when litigation risk is low.

This paper differs from the above studies in the following ways. We view disclosure tone as jointly determined by economic fundamentals and managerial incentives. Accordingly, we decompose tone into a non-discretionary component based on economic fundamentals, and a discretionary component that could reflect managerial incentives. We test whether abnormal tone reveals managerial incentives to inform or disinform investors about future performance.

Furthermore, we examine whether events that past literature has identified as associated with the presence of managerial incentives to bias reporting of quantitative information affect abnormal positive tone. These include events in which the firm just meets or beats various earnings benchmarks, earnings restatements, stock issuances and acquisitions, and stock option grants.

Finally, in keeping with our emphasis on the strategic uses of tone, we provide evidence suggesting that tone misleads investors. Thus, we contribute to the market efficiency literature by systematically studying investors’ contemporaneous and delayed responses to abnormal tone. While several of the studies discussed above find that tone positively predicts future returns in various venues, we find that abnormal positive tone at the time of earnings press releases is a negative predictor of abnormal returns. This is consistent with investors being temporarily misled by tone management, and with
subsequent market correction. A likely reason that our findings differ from the return prediction findings of media or official SEC report tone is that the strategic incentives in a general media context or in the 10-K report are different from the manager’s strategic incentives to manage tone at the time of earnings press releases. We discuss later in the paper reasons for the differences in our findings from Demers and Vega (2011) that find that the change in tone of earnings press releases is a positive predictor of returns.

In sum, we examine the information content of abnormal positive tone, investor response to abnormal positive tone, and the relation between abnormal positive tone and settings associated with biased reporting. By systematically and collectively doing so, we provide evidence for whether discretionary tone is used to inform investors about future fundamentals or to disinform investors and facilitate managerial incentives to mask weak fundamentals and complement earnings management.

III Sample and Descriptive Statistics

III.1 Sample and Data

We obtain the text of annual earnings press releases from PR Newswire and Business Wire, historical financial data from Compustat, stock returns from CRSP and analysts’ earnings forecasts data from I/B/E/S. We first match earnings press releases with the CRSP/Compustat merged database by company name and announcement date. The availability of earnings press release text data determines our sample period, 1997-2007. We eliminate observations without adequate accounting and financial-market variables or whose stock prices are below $1. Each year, all financial variables except returns are winsorized at the 1% level. We are able to obtain 18,436 observations of annual abnormal
positive tone measure (see III.2.2 for details). Since we do not require firms to have future earnings, returns, restatement data to estimate abnormal positive tone, the sample sizes vary across different test specifications and are noted in the tables.\textsuperscript{7}

\textbf{III.2 Variable Measurements}

III.2.1 Discretionary Accruals

Following prior literature (Jones 1991; Dechow, Sloan and Sweeney 1995), we measure discretionary accruals using the cross-sectional modified Jones model. The sample period of 1997-2007 permits us to use SFAS No. 95 statement of cash flow data to estimate accruals rather than balance sheet data that Hribar and Collins (2002) suggest is less accurate:

\[ TAcc_j = EBEI_j - (CFO_j - EIDO_j) \]

where \( TAcc \) = total accruals, \( EBEI \) = income before extraordinary items, \( CFO \) = cash flows from operations, and \( EIDO \) = extraordinary items and discontinued operations included in \( CFO \) for each firm \( j \) in year \( t \).

We then run the following regression for each two-digit SIC-year combination with at least twenty observations:

\[ TAcc_j = \beta_0 \left(1/Assets_{j,t-1}\right) + \beta_1 (\Delta Sales_j - \Delta AR_j) + \beta_2 PPE_j + \nu_j, \]

where \( Assets \) = total assets, \( \Delta Sales \) = annual change in sales, \( \Delta AR \) = change in accounts receivable from operating activities, and \( PPE_j \) = gross property, plant, and equipment, all scaled by lagged total assets. Discretionary accruals (AA) are the regression residuals.

\textsuperscript{7} In addition to PR Newswire, we also include Business Wire as a text source. Consequently, our sample includes more firms than other studies on the tone of earnings press releases. For comparison, Davis et al. (2011) examine 23,400 quarterly observations from 1998-2003. The sample size in Demers and Vega (2011) vary between 14,649 and 20,899 quarterly observations from 1998-2006.
III.2.2 Abnormal Positive Tone Measure in Earnings Press Releases

Previous literature measures qualitative characteristics of financial reports using various software packages, such as Diction (Davis et al. 2011), General Inquirer (Tetlock 2007, Tetlock et al. 2008), and Bayesian machine learning algorithms (Li 2010). Loughran and McDonald (2011) argue that word classifications developed for general purposes are not appropriate for evaluating business communications. Based on a large sample of 10-Ks, they find that many words classified as negative in the Harvard Psychological Dictionary (IV-4) that software such as General Inquirer relies on are not typically negative for financial reports. They compile an alternative word list that they show is more suitable for describing positive and negative tone in financial communications. Therefore, we use their word list to classify the frequency of optimistic versus pessimistic words appearing in the earnings press release.

Following Loughran and McDonald (2011) as well, if there are negation words (no, not, none, neither, never, nobody) immediately before a positive word, we count the positive word as negative. We create the variable TONE as the frequency difference between the positive and the negative words scaled by total non-numerical words in an earnings press release.

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8 Words like tax, liability or foreign are defined as negative words in the Harvard Psychological Dictionary, but have little negative connotations in financial reports.

9 We use the first version word list of Loughran and MacDonald (2011). In June 2011, we find that the word list has been updated on their website to include further positive and negative words. Our results are qualitatively similar with the second version word list after removing a few words that are standard accounting terms, such as writedown, writeoff, restructuring and loss.

10 We also count the instances of double negatives, i.e., negation words immediately before other negative words, and find the frequency is 2%. The results remain the same whether we count them as positive or ignore them.
Positive disclosure tone can arise for several reasons. It may merely be an expression of good current performance. Alternatively, tone can be upwardly biased for different possible reasons. A positive bias in tone may be used by managers to signal to investors information about positive future performance that current quantitative disclosures fail to reveal, owing perhaps to GAAP constraints. Alternatively, positive bias may result from the manager’s strategic attempt to mask poor current performance or hype investors’ perception about the future performance so as to disinform investors.

We decompose TONE into a normal component to reflect a neutral description of current performance, and an abnormal component that proxies for the strategic choice of tone either to inform or disinform investors. We run annual cross-sectional regressions of TONE on tone determinants suggested in Li (2010) that are generally available to investors at the time of the press release. The determinants are measures for current firm performance, growth opportunities, operating risks, and complexity. Specifically, the regression is:  \[ \text{11,12} \]

\[ \text{Our specification differs from Li (2010) in several ways. We do not include variables related to managerial discretionary behavior, such as special items, seasoned equity offering (SEO) and mergers and acquisition (MA) variables, specifically so that the residual as a measure of abnormal tone can reflect these strategic incentives. These variables may also not be known to investors at the time of the earnings press release. Our data pertains to the annual earnings press releases, unlike Li’s (2010) sample of 10-Q reports, so quarter indicator variables are not used. These differences contribute to differences in sign and significance of some of the coefficients, and to a smaller adjusted R-square for us than in Li (2010), in part reflecting the wider latitude in tone of earnings press releases than in the MD&A section of 10-Q reports. Our R-square improves, though remains smaller than Li (2010), when instruments for strategic incentives are included. The improvement in R-square supports that ABTONE is indeed related to strategic motives.} \text{11,12} \]

\[ \text{We also estimate regression (2) at the industry-year level to obtain abnormal tone to mirror the cross-sectional Jones model for estimating discretionary accruals. Our results are quantitatively similar but statistically weaker using the cross-sectional industry model. This is because our tone sample is considerably smaller than the Compustat population and there are significantly more independent variables in regression (2) than in the modified Jones model (9 vs. 3). After requiring at least 20 degrees of freedom for each cross-sectional regression for proper estimation, the sample size is reduced considerably. Our} \]
\[ TONE_{jt} = \alpha + \beta_0 \text{EARN}_{jt} + \beta_1 \text{RET}_{jt} + \beta_2 \text{SIZE}_{jt} + \beta_3 \text{BTM}_{jt} + \beta_4 \text{STD}_\text{RET}_{jt} \]
\[ + \beta_5 \text{STD}_\text{EARN}_{jt} + \beta_6 \text{AGE}_{jt} + \beta_7 \text{BUSSEG}_{jt} + \beta_8 \text{GEOSEG}_{jt} + \epsilon_{jt}, \]  

(2)

where EARN is earnings before extraordinary items scaled by total assets, RET is contemporaneous stock returns calculated using CRSP monthly return data, SIZE is logarithm of market value of equity at fiscal year-end, BTM is book-to-market ratio measured at fiscal year-end, STD_RET is standard deviation of monthly stock returns over the fiscal year, STD_EARN is standard deviation of ROA calculated over the last 5 years, with at least three years of data required, AGE is log(1+ age from the first year the firm entered the CRSP dataset), BUSSEG is log(1+ number of business segments) or 1 if item is missing from Compustat, and GEOSEG is log(1 + number of geographic segments) or 1 if the item is missing from COMPUSTAT.

Profitability (ROA) and stock return performance (RET) proxy for the current financial and market performance, and book-to-market (BTM) controls for growth opportunity. Volatility of stock returns (STD_RET) and volatility of earnings (STD_EARN) proxy for the operating and business risk environment of the company. Age captures life cycle stage of the company. The number of business segments (BUSSEG) and geographic segments (GEOSEG) proxy for operating complexity of the firm.

Table 1 reports the estimation results of regression (1). We find that TONE is more positive when the firm is small, growing and young, has more volatile stock returns results are robust when we control for potential industry effects using clustering by either firm-year or industry-year.
and fewer business segments. Normal positive tone is the predicted value of regression (2). $ABTONE$, abnormal positive tone, is the residual of regression (2). By construction, $ABTONE$ is unrelated to firm fundamentals and business environment such as current market and financial performance, growth prospects, and firm operating risk and complexity. Below, we test whether it is a valid instrument to achieve strategic motives.

### III.3 Summary Statistics

Each year, we obtain the mean, median, standard deviation, 1$^{\text{st}}$, 25$^{\text{th}}$, 75$^{\text{th}}$ and 99$^{\text{th}}$ percentile of the variables in our sample. We then report the annual average of the cross-sectional statistics for the variables in Table 2. Mean $TONE$ is 0.45% and the median is 0.44%, indicating disclosure tone in earnings press release is generally relatively optimistic. In contrast, Loughran and McDonald (2011) report higher mean negative words than positive words in 10-K filings. Thus, disclosure tone tends to be more positive in earnings press releases than in 10-K filings, suggesting that managers are more likely to exploit earnings press releases to hype the firm than in the 10-K filings and be less subject to, though not entirely free of, litigation concerns.$^{13}$ Because an earnings press release is more timely communication about the firm’s performance and future prospects, it is a more salient signal to investors than a 10-K filing. Thus managers may have stronger incentives to be strategically optimistic at earnings announcements. By

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$^{13}$ The 10-K report is audited, its form and format are dictated to a large extent by accounting rules and regulations, and so is more subject to evidentiary use in litigations. As suggested in Li (2011), managers are reluctant to be optimistic in 10-K filings because of litigation concerns.
construction, the mean and median of ABTONE are zero. Most importantly, ABTONE shows considerable variation within the sample.

The summary statistics for the remaining variables are unremarkable and in the ballpark of those from previous literature. In the sample period, 12.25% of the sample beat or meet analysts’ forecasts, 3.43% restate earnings in three years after the earnings announcement, 9.44% and 8.46% of firm-year observations engage in seasonal equity offering (SEO) and Merger and Acquisition (M&A) activities respectively, and between 10% and 11% of firm-year observations award above median-sized stock option grants to CEOs as compensation.

IV Does Abnormal Positive Tone Predict Future Earnings and Cash Flows?

By construction, ABTONE is unrelated to the current financial performance and other firm characteristics. We investigate whether it can identify the effects of strategic motives of managers by testing its ability to predict future financial performance incremental to the reported financial numbers and controls. If abnormal positive tone predicts positive future earnings and cash flows incrementally to discretionary accruals, then tone provides useful incremental information that cannot be conveyed through reported earnings, owing to GAAP constraints. On the other hand, if abnormal tone predicts negative future earnings and cash flows incrementally to discretionary accruals, then managers likely used tone to mask poor future performance to complement earnings management.
We examine the relation between \textit{ABTONE} and future one- to three-year ahead financial performance as measured by either Earnings or Cash flows from Operations, in the following regressions:

\begin{align}
\text{EARN}_{jt+n} &= \alpha + \beta_0 \text{ABTONE}_{jt} + \beta_1 \text{AA}_{jt} + \beta_2 \text{EARN}_{jt} + \beta_3 \text{SIZE}_{jt} \\
&\quad + \beta_4 \text{BTM}_{jt} + \beta_5 \text{RET}_{jt} + \beta_6 \text{STD}_\text{RET}_{jt} + \beta_7 \text{STD}_\text{EARN}_{jt} + \epsilon_{jt}, \quad n=(1,2 or 3) \quad (1)
\end{align}

\begin{align}
\text{CFO}_{jt+n} &= \alpha + \beta_0 \text{ABTONE}_{jt} + \beta_1 \text{AA}_{jt} + \beta_2 \text{EARN}_{jt} + \beta_3 \text{SIZE}_{jt} \\
&\quad + \beta_4 \text{BTM}_{jt} + \beta_5 \text{RET}_{jt} + \beta_6 \text{STD}_\text{RET}_{jt} + \beta_7 \text{STD}_\text{EARN}_{jt} + \epsilon_{jt}, \quad n=(1,2 or 3) \quad (2)
\end{align}

Table 3 presents the estimation results of regression (1) in Panel A and regression (2) in Panel B. We present clustered t-statistics by firm and year to correct for cross-sectional and time-series dependence of errors (Peterson 2009; Gow et al. 2010).\textsuperscript{14} For all horizons from one year to three years ahead, the coefficients of \textit{ABTONE} on future earnings and cash flows are negative and strongly significant at the one percent level. The \textit{ABTONE} coefficients are -0.29, -0.54 and -0.77 for one- to three-year ahead \textit{EARN} respectively. Therefore, a one standard deviation change (0.007) in \textit{ABTONE} implies a decrease of 0.20\%, 0.38\%, and 0.54\% in the one- to three-year ahead ROA respectively. For comparison, the 0.54\% decline amounts to about 17\% of the median ROA of 3.20\% for the sample.\textsuperscript{15}

\textsuperscript{14} As robustness check, we also control for the industry and year fixed effects in addition to the firm-year clustering to obtain t-statistics for all tests in the paper. The results are qualitatively and quantitatively similar.

\textsuperscript{15} These results differ from the evidence that tone optimism predicts positive future earnings by Davis et al. (2011) and Demers and Vega (2011). We note the following differences. Our sample uses annual earnings press releases from both PR Newswire and Business Wire whereas the other two studies examine quarterly earnings press releases only from PR Newswire. We manually check every announcement we downloaded to make sure they are indeed earnings announcements. Our sample has several advantages. Our larger sample size, containing almost twice as many distinct firms, can provide more reliable results. Our sample period is similar to Demers and Vega (2011) and longer than Davis et al. (2011). Quarterly earnings tend to
For CFO regressions, the coefficients on ABTONE in Panel B are -0.52, -0.76, and -0.76 for one to three-year ahead horizons respectively. A one standard deviation increase in ABTONE therefore translates to a decrease in asset-scaled CFO of 0.36%, 0.53%, and 0.53% respectively. The 0.53% decline amounts to 7% of the median CFO of 7.21% for the sample.

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V Abnormal Positive Tone in Strategic Settings

The evidence above suggests that abnormal tone optimism contains negative information about future firm fundamentals. This is consistent with the objective of tone management being to deceive investors about the future prospects of the firm, rather than reveal useful information not contained in concurrently disclosed quantitative numbers. To further elaborate this point, we investigate whether tone management is related to settings where managerial incentives to hype or depress the firm’s image is present. Such incentives are not directly observable, so we rely on settings where past literature has identified as likely associated with a desire to hype or depress firm image. The idea is be more similar for the first three quarters, whereas the fourth quarter (or annual earnings) is more likely to be distinct from other quarters. There is therefore incremental value of studying annual earnings press releases. Demers and Vega (2011) delete observations where announcements of dividends or mergers/acquisitions occurred within two weeks of the earnings press release. We do not rule out such firms as we are particularly desire to study the relation between tone management and managerial strategic incentives. We do, however, remove earnings press releases with concurrent other announcements on the same day. We also read the headlines to ensure that every observation in our sample is an earnings press release, and not about other issues. Finally, we examine abnormal positive tone instead of tone level and control additionally for abnormal accruals. It is possible that normal positive tone (the component that reflects quantitative information) predicts positive future earnings whereas abnormal positive tone predicts negative future earnings. However, our further investigation indicates this is not the case. While unlikely to drive the results, we control for abnormal accruals because we feel that it is important to establish incremental contribution of tone management. We expect tone and accruals to be correlated, and abnormal accruals reverses which may lead to an earnings reversal.
that those firms that have the strongest incentive to manage market perceptions are the most likely to engage in earnings management to influence investor perceptions by these means. We consider the situations of just meeting and beating versus missing several earnings thresholds, experiencing subsequent earnings restatements, and major corporate transactions such as mergers and acquisitions, seasoned equity offerings as instruments for incentives to hype the firm’s image, and the stock option awards setting as an instrument for the incentive to depress the firm’s image.

V.1 Abnormal Positive Tone and Contemporaneous Just Meeting and Beating Earnings Benchmark

Previous literature has documented that managers manipulate earnings to just meet or beat the following earnings thresholds: prior year’s earnings, zero (loss avoidance), and the analysts’ consensus forecasts (e.g. Burgstahler and Dichev 1997; Degeorge, Patel and Zeckhauser 1999). In a related paper, Frankel et al. (2010) find no statistically significant evidence that the tone of conference calls is more negative for firms that just miss analyst forecast by a penny than firms just meet or beat analyst forecast by one penny. Tone in conference calls is spontaneous, thus is less likely to be manipulated than tone in earnings press releases, which can be planned ahead. In addition, we consider all three benchmark beating situations following Phillips et al. (2003). We use the term MBE to refer to the event when the firm just meets or beats these thresholds.

We run the following logistic regression to examine whether abnormal positive tone is associated with a higher likelihood of MBE.
\[ MBE_{jt} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 AA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} \]
\[ + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt}, \]  

Consistent with the three different settings discussed above, the dependent variable \( MBE \) is an indicator variable \( MBE_{change}, MBE_{level} \) or \( MBE_{analyst} \), defined as follows. \( MBE_{change} \) is set to one if change in net income from year \( t-1 \) to \( t \), scaled by the beginning market value of equity is nonnegative, but less than 0.005, and is zero otherwise. \( MBE_{level} \) is set to one if net income in year \( t \), scaled by the beginning market value of equity is nonnegative, but smaller than 0.005, and is zero when the scaled net income is bigger than 0.005. \( MBE_{analyst} \) is set to one if a firm’s forecast error is nonnegative, but smaller than 0.01 (e.g. one cent), and is zero otherwise.

We calculate the forecast error as the difference between earnings per share reported by IBES and the consensus earnings forecast, defined as the median of the most recent forecasts. Earnings, forecasts, and stock prices are all split-adjusted. The control variables are defined previously in the data section.

Table 4 presents the estimation results of regression (5) across the three contemporaneous MBE benchmark settings; Panel A for the prior year’s earnings threshold or avoidance of a decline of profitability, Panel B for the zero earnings threshold or a loss avoidance and Panel C for the analysts’ forecast threshold. In all three settings, we find that the abnormal positive tone is associated with significantly higher likelihood of MBE, consistent with disclosure tone manipulation as a complement to

\[ \text{For } MBE_{change} \text{ and } MBE_{level}, \text{ the results are qualitatively similar if the cutoff is 0.01 instead. Since the average mean forecast error is around 0.05, we use the smaller bin size. It is typical to consider meeting or beating analysts’ forecasts by one cent and hence we use bin size 0.01 for } MBE_{analyst}. \]
beating or meeting earnings benchmarks. The two methods are jointly used by managers to promote a rosy picture of the company to investors.

The magnitude of the economic effects is substantial. A one standard deviation increase in $ABTONE$ increases the odds of reporting an earnings increase of 13%, profits over losses of 28%, and earnings exceeding or equaling forecasts by 8%. Consistent with findings from prior studies, we also find that bigger firms, growth firms, and firms with more volatile operating environments are more likely to meet/beat thresholds.

\[ \text{Put Table 4 here} \]

V.2 Abnormal Tone and Future Earnings Restatements

Since manipulation of quantitative and qualitative information at earnings press releases are both tools of perception management, we test whether tone manipulation predicts future earnings restatements incrementally to the discretionary quantitative numbers.\(^{17}\) We run the following logistic regression:

\[
\text{RESTATE}_{jt,n} = \alpha + \beta_0 \ ABTONE_{jt} + \beta_1 \ AA_{jt} + \beta_2 \ EARN_{jt} + \beta_3 \ SIZE_{jt} + \beta_4 \ BTM_{jt} + \beta_5 \ RET_{jt} + \beta_6 \ STD \ _{jt} + \beta_7 \ STD \ _{EARN_{jt}} + \epsilon_{jt}, \ n=(1,2, \ or \ 3) \quad (4)
\]

The restatement data is from the GAO database from 1997 to 2006.\(^{18}\) Hennes, Leone, and Miller (2008) classify restatements into innocuous accounting errors versus irregularities that likely stem from earlier earnings manipulation. For a cleaner test for the

\(^{17}\) Here, we do not mean to suggest by this regression that tone management causes future earnings restatements. We expect that earnings management and tone management can be complementary. The observed positive correlation between tone management and future earnings restatement may in part be derived from abnormal accruals inadequately capturing all earnings management.

\(^{18}\) Our sample of observations on abnormal positive tone in Table 5 stops in 2004 because we relate the abnormal positive tone to future restatements up to three years subsequent to the earnings press release and the data for restatements end in 2006.
association with earnings manipulation, we focus therefore only on the irregularities sample. Since not all restatements occur shortly after earnings press releases, we study the likelihood of restatements in one-year, two-year and three-year horizons after the earnings press releases. Correspondingly, the dependent indicator variable RESTATE is labeled $RESTATE_{t+1}$, $RESTATE_{t+2}$ and $RESTATE_{t+3}$ respectively. After matching restatement data with our original dataset, we have 189, 351, and 467 firms restating their financial statements due to irregularities in the one-, two- and three-year horizons after earnings press releases respectively.

We present the estimation results of regression (4) in Table 5. Size is positively significant, consistent with bigger firms being more likely to attract publicity and hence scrutiny from regulators (Lee, Li and Yue 2006). Firms with high return volatilities are also more likely to restate earnings.

Most importantly, the coefficients on $ABTONE$ are positive in all three horizons regressions and are significant in the two-year and the three-year horizons regressions, with p-values less than 0.05. To measure the economic effect of $ABTONE$ on future earnings restatement, we calculate the marginal effect in the probability of restating earnings when abnormal tone changes by one standard deviation, holding all other independent variables at their means. We find that a one standard deviation increase in $ABTONE$ increases the odds of a future restatement in two years by 11.7% and in three years by 11.6%.

In sum, our results show that firms with abnormal positive tone are more likely to restate their earnings number (due to irregularities) two or three years hence. The classifications are obtained from http://sbaleone.bus.miami.edu/. Our results are similar if we also include restatements due to accounting errors and mistakes in the sample.
evidence is therefore consistent with managers employing both earnings manipulation and tone manipulation as complementary tools to hype investor perception.

VII Abnormal Positive Tone and Corporate Transactions

We next examine whether $ABTONE$ is positively related to two major corporate transactions, a seasoned equity offering ($SEO$) and mergers and acquisitions ($M&A$), that prior studies have documented are settings where firms have manipulated investor perceptions upward through earnings numbers (e.g., Teoh et al. 1998; Erickson and Wang 1999). We estimate the following two logistic regressions:

\[
SEO_{t+1} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 AA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD\_RET_{jt} + \beta_7 STD\_EARN_{jt} + \varepsilon_{jt}, \quad (5)
\]

\[
M&A_{t+1} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 AA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD\_RET_{jt} + \beta_7 STD\_EARN_{jt} + \varepsilon_{jt}, \quad (6)
\]

where $SEO_{t+1}$ is a dummy variable that is set to one when the Sale of Common and Pref. Stock (SSTK) in one year after an earnings press release is bigger than ten percent of lagged total assets, and is zero otherwise. $M&A_{t+1}$ is set to one if the amount of acquisition (AQC) in one year after an earnings press release is greater than 10% of lagged total assets, and is zero otherwise. When the COMPUSTAT items are missing, we set them to zero. There are about 1,800 $SEO_{t+1}$ observations and 1,654 $M&A_{t+1}$ observations that are equal to one.
Panel A of Table 6 presents the results for SEO and Panel B for M&A. We find that the coefficient on discretionary accruals in Panel A is positive and significant in our sample, consistent with the evidence from previous studies (Teoh et al. 1998) that firms tend to report more positive discretionary accruals (AA) prior to an equity issuance. Small firms, firms with low earnings, more growth opportunities (low BTM), higher momentum in stock returns over the year prior to earnings press releases (high RET) and more risky firms that have either higher stock return volatilities or higher earnings volatilities are more likely to issue stocks in the subsequent year.

The coefficient on our key test variable, ABTONE, is positive and highly significant with p-value less than 0.01. The effect of ABTONE is economically significant; a one standard deviation increase in ABTONE increases the probability of an SEO by 7%. These results are consistent with the hypothesis that managers strategically choose the disclosure tone when disclosing earnings performance prior to a stock issuance to incite greater excitement about the firm and obtain a better price for the newly issued shares.

Panel B of Table 6 presents the estimation results of regression (6) when the dependent variable is M&A. A similar finding emerges. Abnormal positive tone is positively associated with undertaking M&A activities in the immediate future. A one standard deviation increase in ABTONE is associated with an increase in the frequency of M&A of 12%. This suggests that managers of firms that plan acquisitions may use tone to facilitate the transaction. In sum, both tests are consistent with the hypothesis that managers strategically use disclosure tones to influence investors’ perception positively prior to major corporate transactions.

Put Table 6 here
VII Abnormal Positive Tone and Stock Option Grants

In this section, we examine whether abnormal positive tone is related to stock option grants, because prior studies document that firms experience incentives to bias downward investor perceptions about firm value around the grant date (e.g., Aboody and Kasznik, 2000; Baker et al., 2003; McAnnaly et al., 2008). This setting contrasts with the setting in the previous sections where the incentive is to hype investor perception. We estimate the following logistic regression:

\[
Grant_{t+1} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 AA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} \\
+ \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD\_RET_{jt} + \beta_7 STD\_EARN_{jt} + \epsilon_{jt}, \quad \text{for } i = 0, 1. \quad (7)
\]

We obtain stock option grant data for CEOs from Execucomp. \( Grants \) is set to one when the reported Black-Scholes fair value of stock options granted to the CEO that year is bigger than the median of the year in the sample. We select larger grants because the incentives to bias down perceptions are expected to be present for large grants rather than for small continuous grants. Since grants are not awarded by every firm or in every year, we set missing values to zero.

There are 2,256 firm-year observations with contemporaneous period large grants, and 1,565 large grants in the following year. Aboody and Kaznik (2000) report that 40% of all option grants are awarded in the months of December, January, and February, which may be just before or contemporaneously announced in the earnings press release. We examine both contemporaneous and future stock option grants because we do not have the specific grant date.
The results for the contemporaneous relation between abnormal positive tone and \( GRANT_t \) are in Panel A of Table 7 and for the one-year ahead \( GRANT_{t+1} \) in Panel B. We find that the coefficient on discretionary accruals in Panel A is negative and significant in both panels, consistent with evidence from previous studies (e.g. Baker et al., 2003) that firms tend to report more negative discretionary accruals (AA) for big stock option grants.

The coefficient on our key test variable, \( ABTONE \), is negative and significant in both panels A and B. The effect is economically significant. A one standard deviation increase in \( ABTONE \) is associated with an increase in the likelihood that option grants are awarded in the contemporaneous (next) year of 6.4% (5.6%). These results are consistent with the hypothesis that managers strategically choose to depress disclosure tone of earnings press release so as to depress investor perceptions for an option grant.

VIII Immediate and Delayed Market Reactions to Abnormal Positive Tone

So far, we have established that managers strategically manipulate tone as a complement to earnings manipulation in various situations such as meeting benchmarks and major corporate transactions. When managerial agency issues are present, the ultimate goal of such strategic behavior is to influence stock valuations. Numerous studies argue that investors do not perfectly see through accruals-based earnings manipulations, which is part of the explanation for the accruals or discretionary accruals anomaly (see e.g., Sloan 1996; Xie 2001; and Teoh et al. 1998). We ask an analogous question for abnormal positive tone, and so we test whether investors can see through the managerial opportunism in the use of disclosure tone. To address this issue, we examine
the stock price reactions to abnormal positive tone in the immediate short horizon at earnings announcements, and in the longer horizon of one quarter and two quarters after the earnings announcements.

VII.1 Market Reaction at the Time of Earnings Announcements

In Section IV we document that abnormal positive tone is negatively related to subsequent earnings and cash flow from operations. If investors discount at least partially for strategic hyping of abnormal positive tone, they would respond negatively to abnormal positive tone at earnings announcement. In contrast, if managers succeed in misleading investors by exciting over-optimism with tone manipulation, we expect that investors would respond positively to abnormal positive tone, incremental to the contemporaneously disclosed quantitative news.

We use the following regression to examine the announcement period response to both the quantitative news and qualitative tone measure.

\[
CR \ [-1, \ +1] = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RAA_{jt} + \beta_2 SUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} \\
+ \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \epsilon_{jt},
\]

(8)

where \( SUE_{jt} \) is firm \( j \)'s current quarterly earnings minus earnings of same quarter last year, scaled by market value of the beginning of the quarter. The dependent variable is the three day cumulative returns from one trading day before to one trading day after the earnings announcement. We include \( AA \) and \( SUE \) as proxies for the quantitative news. Two-way clustered t-statistics are reported, clustering by firm and by year, as is customary to control for potential cross-sectional regression correlation in residuals.
To gauge economic significance more easily, we follow Bernard and Thomas (1990) in using annual decile rank measures for the variables, \( RAA \), \( RSUE \) and \( RABTONE \). The decile rankings (1 to 10) are reduced by one and then divided by nine so as to range between 0 and 1. Thus the slope of coefficients can be viewed as abnormal returns to zero-investment portfolios.

We present the estimation results of regression (8) in Panel A of Table 7. Consistent with the earnings response coefficients literature, we find that the contemporaneous return response to earnings news (\( RSUE \)) is significantly positive (\( t = 16.31 \)). Stock returns are higher for small, value, and less volatile returns firms. The response to abnormal accruals is weak though negative. For the key variable, \( RABTONE \), the coefficient of 74 basis points is significantly positive (\( t = 2.77 \)), and economically substantial. This indicates that investors do not discount for the negative information about future performance contained in abnormal positive tone when valuing the firm. Instead, they buy into the managers’ narrative that the abnormal optimistic tone reflects favorable economic circumstances of the firm.

This raises the possibility that the higher stock prices associated with tone management reflect overvaluation at the time of the earnings announcements, and will subsequently reverse. We test this possibility in the next subsection.

\textbf{VII.2 Delayed Market Reaction after Earnings Announcements}

Next, we formally test whether investors are misled by abnormal positive tone at the time of the earnings announcements. If this is the case, we expect that \( ABTONE \) negatively predicts future stock returns as investors correct their initial pricing errors.
gradually as more information about fundamentals is released over time. We run the following regression:

\[
CR_{[+2, +61]} = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RAA_{jt} + \beta_2 RSUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} \\
+ \beta_5 RET_{jt} + \beta_6 STD\_RET_{jt} + \beta_7 STD\_EARN_{jt} + \epsilon_{jt}, \quad (9)
\]

\[
CR_{[+2, +121]} = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RAA_{jt} + \beta_2 RSUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} \\
+ \beta_5 RET_{jt} + \beta_6 STD\_RET_{jt} + \beta_7 STD\_EARN_{jt} + \epsilon_{jt}, \quad (10)
\]

The dependent variable is the cumulative returns one quarter and two quarters after the earnings announcements for regression (9) in Panel B and regression (10) in Panel C of Table 8 respectively. The coefficient on \(RSUE\) is positive in both panels and significant in Panel C. The coefficient on \(RAA\) is negative and significant in Panel B, and almost significant at 5% level in Panel C \((t = -1.90)\). The general signs for the coefficients on these variables are consistent with previous literature, and the varying statistical significance is also consistent with evidence that PEAD and the (discretionary) accruals effects are weaker in recent periods in the literature. Consistent with the broad asset pricing literature, \(SIZE\) is negatively related, and \(BTM\) and return momentum are positively related with future stock returns over various horizons.

Turning to our key variable, \(RABTONE\) significantly predicts stock returns both one quarter ahead (Panel B, \(t = -2.42\)) and two quarters ahead (Panel C, \(t = -2.95\)). The magnitude of the coefficients is also economically significant, and comparable in magnitude with the strength of the accrual anomaly and PEAD anomaly. The abnormal returns from tone management is 2.44% for one quarter (9.76% annualized) and 4.70% for two quarters (9.4% annualized). Our finding is consistent with the hypothesis that abnormal tone misleads investors at the time of earnings announcement dates.
Specifically, these findings suggest that the market temporarily overvalues firms with optimistic tone by not sufficiently discounting for the negative information that is contained in abnormal positive tone about future financial performance.

These results differ from Demers and Vega (2011), who find a positive relation between change in tone and one-quarter ahead returns. The change in tone may be less suitable as a measure of tone management than our discretionary tone, analogous to why change in accruals is a poor measure of discretionary accruals. It may reflect the combined effects of changes in fundamentals as well as managerial discretion. In unreported tests, we find that the change in tone is negatively related to MBE and restatements, and has no relation with equity issuance (both SEO and M&A) and stock options grant. These evidence together suggest that the change in tone is less likely to be related to managerial discretion, and more likely driven by changes in fundamentals, Furthermore, our sample contains more firms because we also use Business Wire as a text source; the larger sample size increases the reliability of the inference. Although this is unlikely to drive the difference in results, we control for abnormal accruals. This is important to establish incremental contribution of tone management because we expect tone and accruals to be correlated, and accruals is a known return predictor. Finally, we consider annual earnings releases whereas Demers and Vega study quarterly announcements. To the extent that annual earnings announcements are more salient for investors, managers facing strategic incentives may be more willing to manage tone for annual earnings than for quarterly earnings.

The coefficients for RABTONEx based on Eqs. (9) and (10) imply that, on average, abnormal positive tone information could have been used to construct a portfolio with
abnormal returns of 2.44% (9.76% annualized) and 4.70% (9.40% annualized) respectively, over the next one or two quarter intervals. The magnitude is comparable to the coefficient of discretionary accruals in the one-quarter return regression and dominates that for discretionary accruals in the two-quarter return regression.

VIII Conclusion

Managers convey information about firms’ performances to their investors in many forms. Audited financial statements are filed with the SEC periodically but are less timely than the earnings in press releases that precede the SEC filings. Therefore, earnings press releases are an important venue to study pricing effects of accounting information. The press releases contain salient numbers about the earnings performance and the accounting academic literature has shown them to be highly informative to investors. Beyond disclosing the quantitative information, however, these press releases also contain qualitative text to help investors interpret the quantitative information. The tone in these qualitative disclosures is important in influencing investors’ assessments about the value of the firm.

We analyze how managers use tone in the earnings press releases either to inform (by clarifying accompanying quantitative information or signaling additional information that are restricted from being incorporated into current quantitative results by accounting GAAP rules), or to disinform by masking poor future financial performance.

In contrast with previous literature, we test for the strategic use of tone management to mislead investors or to achieve managerial objectives. We find that managers tend to use disclosure tone to complement quantitative earnings management, and that tone
employed more frequently in circumstances in which incentives are the strongest for firms to bias investor perceptions. Abnormal positive tone is usually higher when firms meet or beat past earnings or analysts’ consensus forecasts, when firms achieve reporting profits rather than losses, and when earnings are upwardly biased to such an extent as to require a future restatement. Furthermore, we find that abnormal positive tone is higher before a firm issues new equity or undertakes a merger or acquisition. In contrast, when firms award stock options to CEOs (which is associated with a managerial incentive to reduce the share price), they prefer to manipulate the tone downward. Furthermore, our evidence indicates that tone manipulation succeeds in misleading investors, and that this effect is incrementally to the effects of accruals management. An abnormally positive tone incites an overly optimistic immediate stock price response to the earnings announcement and a subsequent return reversal.

Overall, our evidence is consistent with firms successfully engaging in tone management, and engaging in it especially when the incentives to do so are high. This research raises the question of whether accounting regulators need to consider restrictions on the use of tone management in firms’ communications to investors.
References


Isho Tama-Sweet. 2010. Do managers alter the tone of their earnings announcements around stock option grants and exercises? Working Paper, California State University, Fullerton.


Annual Reports. Working paper, University of Texas at Dallas.


<table>
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**T-stat** (6.85) (6.26) (-0.44) (-4.80) (-4.03) (5.35) (-0.85) (-1.97) (-5.61) (0.73)

**Notes:** TONE is the frequency difference between the positive and the negative words relative to total non-numerical words in an earnings press release. EARN is the earnings before extraordinary income scaled by beginning total assets. RET is the buy-and-hold returns for the 12-month period ending three months after fiscal year-end. SIZE is the log of market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET is the standard deviation of monthly stock returns of the 12-month period ending three months after fiscal year end. STD_EARN is the standard deviation of EARN over the last five years. AGE is the logarithm of one plus number of years since a firm appears in CRSP monthly file. BUSSEG is the logarithm of one plus the number of business segment. GEOSEG is the logarithm of one plus the number of geographic segment. The t-statistics (in parentheses and italics) are based on two-way clustering at both year and firm level. Bold numbers indicate significance at less than the 5% level (2-tailed t-test).
# Table 2 Descriptive Statistics

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<td>0.0000</td>
<td>0.0986</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5455</td>
</tr>
<tr>
<td>RESTATE_t+2</td>
<td>0.0266</td>
<td>0.0000</td>
<td>0.1335</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.7273</td>
</tr>
<tr>
<td>RESTATE_t+3</td>
<td>0.0343</td>
<td>0.0000</td>
<td>0.1518</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.7273</td>
</tr>
<tr>
<td>SUE</td>
<td>0.0885</td>
<td>0.1121</td>
<td>1.5726</td>
<td>-3.9393</td>
<td>-0.7205</td>
<td>1.0262</td>
<td>3.6533</td>
</tr>
<tr>
<td>CR(-1,+1)</td>
<td>0.0021</td>
<td>-0.0004</td>
<td>0.0667</td>
<td>-0.1554</td>
<td>-0.0281</td>
<td>0.0272</td>
<td>0.2076</td>
</tr>
<tr>
<td>CR(+2,+61)</td>
<td>0.0409</td>
<td>0.0171</td>
<td>0.3223</td>
<td>-0.5908</td>
<td>-0.1249</td>
<td>0.1702</td>
<td>1.0472</td>
</tr>
<tr>
<td>CR(+2,+121)</td>
<td>0.0730</td>
<td>-0.0031</td>
<td>0.5998</td>
<td>-0.7486</td>
<td>-0.2175</td>
<td>0.2364</td>
<td>2.0520</td>
</tr>
<tr>
<td>GRANT_t</td>
<td>0.0957</td>
<td>0.0000</td>
<td>0.2698</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9091</td>
</tr>
<tr>
<td>GRANT_t+1</td>
<td>0.1026</td>
<td>0.0000</td>
<td>0.2781</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.9000</td>
</tr>
<tr>
<td>SEO_t+1</td>
<td>0.0944</td>
<td>0.0000</td>
<td>0.2909</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>M&amp;A_t+1</td>
<td>0.0846</td>
<td>0.0000</td>
<td>0.2757</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Notes:

Each year, we produce the mean, median, standard deviation, 1\textsuperscript{st}, 25\textsuperscript{th}, 75\textsuperscript{th} and 99\textsuperscript{th} percentile of key variables in our sample. We then report the annual average of the above statistics for our sample period, 1997 to 2007. The variables are defined as follows:

\textit{TON}E is the frequency difference between the positive and the negative words relative to total non-numerical words in an earnings press release.

\textit{AA} is the discretionary accruals calculated using the 2-digit SIC industry cross-sectional modified Jones model.

\textit{EARN} is the earnings before extraordinary income scaled by beginning total assets.

\textit{CFO} is operating cash flow scaled by beginning total assets.

\textit{RET} is the buy-and-hold returns for the 12-month period ending three months after the fiscal year-end.

\textit{SIZE} is the logarithm of market value of equity at fiscal year end.

\textit{BTM} is the book-to-market ratio measured at fiscal year end.

\textit{STD\_RET} is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end.

\textit{STD\_EARN} is the standard deviation of \textit{EARN} over last five years.

\textit{AGE} is the logarithm of one plus number of years since a firm appears in CRSP monthly file.

\textit{BUSSE}G is the logarithm of one plus the number of business segment.

\textit{GEOSEG} is the logarithm of one plus the number of geographic segment.

\textit{MEET\_change} is set to one if change earnings, scaled by the beginning market value of equity, is nonnegative, but less than 0.005; and is zero otherwise.

\textit{MEET\_level} is set to one if earnings before extraordinary income, scaled by the beginning market value of equity is nonnegative, but smaller than 0.005; and is zero if earnings before extraordinary income, scaled by the beginning market value of equity is bigger than 0.005.

\textit{MEET\_analyst} is set to one if a firm’s forecast error is nonnegative, but smaller than 0.01 (e.g. one cent); and is zero otherwise.

\textit{RESTATE}, \(i\geq 1\), is set to one if a firm restates its earnings due to irregularities in year \(t+i\), \(i=1, 2, \) and 3, after earnings announcement; and is zero otherwise.

\textit{SUE} is the standard unexpected earnings, calculated as the change from the same quarter last year’s earnings scaled by its standard deviations, calculated over previous twenty quarters data, with at least ten observations available. SUE is winsorized at the value of 5.

\textit{CR\_{-1,+1}} is the three day cumulative stock returns one trading day before to one trading day after the earnings announcement.

\textit{CR\_{+2,+61}} is the sixty day cumulative stock returns starting the second day after the earnings announcement.

\textit{CR\_{+2,+121}} is the one hundred and twenty day cumulative stock returns starting the second day after the earnings announcement.

\textit{GRANT}, \(i\geq 0\), \(I\), is set to one when the reported Black-Scholes fair value of stock options (from Execucomp) granted to the CEO in year \(t+i\) is bigger than the median of that year in the sample.

\textit{SEO} is set to one when the Sale of Common and Pref. Stock (SSTK) in one year after earnings press release is bigger than ten percent of beginning total assets; and is zero otherwise.

\textit{M&A} is set to one if the amount of acquisition (AQC) in one year after earnings press release is bigger than ten percent of beginning total assets; and is zero otherwise.
Table 3  Abnormal Positive Tone and Future Financial Performance

**Panel A: Future Earnings and Abnormal Positive Tone**

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>DEP. VAR.</th>
<th>α</th>
<th>α</th>
<th>ABTONE</th>
<th>ABTONE</th>
<th>AA</th>
<th>AA</th>
<th>EARN</th>
<th>EARN</th>
<th>SIZE</th>
<th>SIZE</th>
<th>BTM</th>
<th>BTM</th>
<th>RET</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnₜ₊₁</td>
<td>(3.19)</td>
<td>0.0423</td>
<td>-0.2924</td>
<td>0.6762</td>
<td>-0.0007</td>
<td>0.0011</td>
<td>0.0095</td>
<td>-1.0923</td>
<td>-0.0809</td>
<td>15899</td>
<td>51.96%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>(-3.38)</td>
<td>-0.5183</td>
<td>-0.2757</td>
<td>0.5175</td>
<td>-0.0004</td>
<td>0.0043</td>
<td>0.0012</td>
<td>-0.9899</td>
<td>-0.1085</td>
<td>14336</td>
<td>35.08%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earnₜ₊₂</td>
<td>(1.92)</td>
<td>0.0396</td>
<td>-0.5376</td>
<td>0.5175</td>
<td>-0.0004</td>
<td>0.0043</td>
<td>0.0012</td>
<td>-0.9899</td>
<td>-0.1085</td>
<td>14336</td>
<td>35.08%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>T</td>
<td>(-2.75)</td>
<td>-0.7738</td>
<td>-0.2610</td>
<td>0.4402</td>
<td>0.0008</td>
<td>0.0035</td>
<td>-0.0024</td>
<td>-0.5650</td>
<td>-0.1162</td>
<td>12287</td>
<td>27.44%</td>
<td></td>
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<tr>
<td>Earnₜ₊₃</td>
<td>(1.38)</td>
<td>0.0259</td>
<td>-0.7738</td>
<td>0.4402</td>
<td>0.0008</td>
<td>0.0035</td>
<td>-0.0024</td>
<td>-0.5650</td>
<td>-0.1162</td>
<td>12287</td>
<td>27.44%</td>
<td></td>
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</tr>
</tbody>
</table>

**Panel B: Future Cash Flows and Abnormal Positive Tone**

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>DEP. VAR.</th>
<th>α</th>
<th>α</th>
<th>ABTONE</th>
<th>ABTONE</th>
<th>AA</th>
<th>AA</th>
<th>EARN</th>
<th>EARN</th>
<th>SIZE</th>
<th>SIZE</th>
<th>BTM</th>
<th>BTM</th>
<th>RET</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFOₜ₊₁</td>
<td>(5.42)</td>
<td>0.0513</td>
<td>-0.5183</td>
<td>0.6178</td>
<td>0.0046</td>
<td>0.0026</td>
<td>-0.0004</td>
<td>-0.3755</td>
<td>-0.0513</td>
<td>15877</td>
<td>48.87%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>(-3.45)</td>
<td>-0.7578</td>
<td>-0.3059</td>
<td>0.5063</td>
<td>0.0036</td>
<td>0.0012</td>
<td>0.0001</td>
<td>-0.4286</td>
<td>-0.0623</td>
<td>14317</td>
<td>37.22%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFOₜ₊₂</td>
<td>(5.09)</td>
<td>0.0641</td>
<td>-0.7578</td>
<td>0.5063</td>
<td>0.0036</td>
<td>0.0012</td>
<td>0.0001</td>
<td>-0.4286</td>
<td>-0.0623</td>
<td>14317</td>
<td>37.22%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>(-3.83)</td>
<td>-0.7555</td>
<td>-0.2898</td>
<td>0.4322</td>
<td>0.0027</td>
<td>-0.0033</td>
<td>-0.0024</td>
<td>-0.3737</td>
<td>-0.0668</td>
<td>12272</td>
<td>30.26%</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CFOₜ₊₃</td>
<td>(5.74)</td>
<td>0.0764</td>
<td>-0.7555</td>
<td>0.4322</td>
<td>0.0027</td>
<td>-0.0033</td>
<td>-0.0024</td>
<td>-0.3737</td>
<td>-0.0668</td>
<td>12272</td>
<td>30.26%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Notes:** In Panel A, the dependent variables EARN of one to three years ahead in the future. In panel B, the dependent variables are CFO of one to three years ahead in the future. ABTONE is abnormal positive tone, measured as the residuals from the annual cross-sectional model of \( TONE \_j = \alpha + \beta_0 \ ROA \_jt + \beta_1 \ RET \_jt + \beta_2 \ SIZE \_jt + \beta_3 \ BTM \_jt + \beta_4 \ STD\_RET \_jt + \beta_5 \ STD\_EARN \_jt + \beta_6 \ AGE \_jt + \beta_7 \ BUSSEG \_jt + \beta_8 \ GEOSEG \_jt + \epsilon \_jt \). AA is the discretionary accruals calculated using the 2-digit SIC industry cross-sectional modified Jones model. EARN is the earnings before extraordinary income scaled by beginning total assets. RET is the buy-and-hold returns for the 12-month period ending three months after fiscal year-end. SIZE is the logarithm of market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end. STD_EARN is the standard deviation of EARN over the last five years. AGE is the logarithm of one plus number of years since a firm appears in CRSP monthly file. BUSSEG is the logarithm of one plus the number of business segment. GEOSEG is the logarithm of one plus the number of geographic segment. The t-statistics (in parentheses and italics) are based on two-way clustering at both year and firm levels. Bold numbers indicate significance at less than the 5% level (2-tailed t-test).
<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>α</th>
<th>ABTONE</th>
<th>AA</th>
<th>EARN</th>
<th>SIZE</th>
<th>BTM</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Pseudo R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Earnings Target 1: Scaled Earnings Changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEET_change</td>
<td>-2.1211</td>
<td>17.8806</td>
<td>0.7899</td>
<td>1.0789</td>
<td>0.0941</td>
<td>-0.9059</td>
<td>-0.4465</td>
<td>-11.4809</td>
<td>-3.8934</td>
<td>17,273</td>
<td>8.57%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0001)</td>
<td>(0.0524)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel B: Earnings Target 2: Scaled Earnings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEET_level</td>
<td>-0.3262</td>
<td>35.8029</td>
<td>-4.2117</td>
<td>-189.7699</td>
<td>0.0574</td>
<td>-1.8201</td>
<td>-0.7142</td>
<td>31.9593</td>
<td>7.4695</td>
<td>11,707</td>
<td>59.96%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.4851)</td>
<td>(0.0023)</td>
<td>(0.0001)</td>
<td>(0.2476)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel C: Earnings Target 3: Analysts' Forecast</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEET_analyst</td>
<td>-2.3286</td>
<td>12.0144</td>
<td>-0.2626</td>
<td>0.8817</td>
<td>0.0951</td>
<td>-0.3709</td>
<td>-0.1168</td>
<td>1.4625</td>
<td>-0.2372</td>
<td>13,842</td>
<td>2.46%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0016)</td>
<td>(0.3786)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0008)</td>
<td>(0.4330)</td>
<td>(0.4569)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: This table shows the logistic regression results across three just meeting or beating earnings benchmark settings. In Panel A, the dependent variable MEET_change is set to one if change in earnings before extraordinary income from scaled by the beginning market value of equity, is nonnegative, but less than 0.005; and is zero otherwise. In Panel B, the dependent variable MEET_level is set to one if net income in year t, scaled by the beginning market value of equity is nonnegative, but smaller than 0.005; and is zero if the scaled net income is bigger than 0.005. In Panel C, the dependent variable MEET_analyst is set to one if a firm’s forecast error is nonnegative, but smaller than 0.01 (e.g. one cent), and is zero otherwise. ABTONE is abnormal positive tone, measured as the residuals from the annual cross-sectional model of TONE_{jt} = \alpha + \beta_0 ROA_{jt} + \beta_1 RET_{jt} + \beta_2 SIZE_{jt} + \beta_3 BTM_{jt} + \beta_4 STD_RET_{jt} + \beta_5 STD_EARN_{jt} + \beta_6 AGE_{jt} + \beta_7 BUSSEG_{jt} + \beta_8 GEOSEG_{jt} + \epsilon_{jt}. AA is the discretionary accruals calculated using the cross-sectional modified Jones model. EARN is the earnings before extraordinary items scaled by beginning total assets. RET is the buy-and-hold returns for the 12-month period ending three months after fiscal year-end. SIZE is the logarithm of market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end. STD_EARN is the standard deviation of EARN over last five years. P-values are in italics and reported in parentheses. Bold numbers indicate significance at less than the 5% level for two-tailed tests.
### Table 5 Abnormal Positive Tone and Future Earnings Restatements

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>$\alpha$</th>
<th>ABTONE</th>
<th>AA</th>
<th>EARN</th>
<th>SIZE</th>
<th>BTM</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Pseudo R$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTATE$_{t+1}$</td>
<td>-5.9006</td>
<td>4.9568</td>
<td>-0.2553</td>
<td>-0.4433</td>
<td>0.2297</td>
<td>0.1592</td>
<td>-0.0598</td>
<td>7.3373</td>
<td>-0.3719</td>
<td>12,352</td>
<td>1.71%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.6385)</td>
<td>(0.7329)</td>
<td>(0.2731)</td>
<td>(0.0000)</td>
<td>(0.1643)</td>
<td>(0.4513)</td>
<td>(0.0929)</td>
<td>(0.6609)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESTATE$_{t+2}$</td>
<td>-5.3554</td>
<td>15.7736</td>
<td>0.1997</td>
<td>-0.1737</td>
<td>0.2324</td>
<td>0.1569</td>
<td>-0.0751</td>
<td>9.6470</td>
<td>-0.4506</td>
<td>12,352</td>
<td>2.06%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0427)</td>
<td>(0.7243)</td>
<td>(0.5861)</td>
<td>(0.0000)</td>
<td>(0.0620)</td>
<td>(0.2068)</td>
<td>(0.0024)</td>
<td>(0.4821)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESTATE$_{t+3}$</td>
<td>-5.0525</td>
<td>15.6193</td>
<td>0.0854</td>
<td>-0.2451</td>
<td>0.2374</td>
<td>0.1443</td>
<td>-0.1197</td>
<td>9.3513</td>
<td>-0.5905</td>
<td>12,352</td>
<td>2.46%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0215)</td>
<td>(0.8626)</td>
<td>(0.3751)</td>
<td>(0.0000)</td>
<td>(0.0517)</td>
<td>(0.0307)</td>
<td>(0.0008)</td>
<td>(0.2948)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** This table shows the logistic regression results of future earnings restatements on Pand other control variables. The dependent variables are the restatements in the next three years. Our sample for restatement stops at year 2004 since we examine the future restatements up to three years ahead. For simplicity, industry and year dummies are included in the regression, but not reported in the table. $RESTATE_{t+1}$ is set to one if a firm restates its earnings due to irregularities in one year after earnings announcements; and is zero otherwise. $RESTATE_{t+2}$ is set to one if a firm restates its earnings due to irregularities within two years after earnings announcements; and is zero otherwise. $RESTATE_{t+3}$ is set to one if a firm restates its earnings due to irregularities within three years after earnings announcements; and is zero otherwise. $ABTONE$ is abnormal positive tone, measured as the residuals from the annual cross-sectional model of $TONE_{jt} = \alpha + \beta_0 \text{ROA}_{jt} + \beta_1 \text{RET}_{jt} + \beta_2 \text{SIZE}_{jt} + \beta_3 \text{BTM}_{jt} + \beta_4 \text{STD_RET}_{jt} + \beta_5 \text{STD_EARN}_{jt} + \beta_6 \text{AGE}_{jt} + \beta_7 \text{BUSSEG}_{jt} + \beta_8 \text{GEOSEG}_{jt} + \text{\epsilon}_{jt}$. $AA$ is the discretionary accruals calculated using the cross-sectional modified Jones model. $RET$ is the buy-and-hold returns for the 12-month period ending three months after fiscal year-end. $SIZE$ is the logarithm of market value of equity at fiscal year end. $BTM$ is the book-to-market ratio measured at fiscal year end. $STD_RET$ is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end. $STD_EARN$ is the standard deviation of $EARN$ over past five years. $P-values$ are italics and reported in parentheses. Bold numbers indicate significance at less than the 5% level for two-tailed tests.
Table 6 Abnormal Positive Tone and Corporate Transactions

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>α</th>
<th>ABTONE</th>
<th>AA</th>
<th>EARN</th>
<th>SIZE</th>
<th>BTM</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Pseudo R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEO</td>
<td>-1.6612</td>
<td>9.159</td>
<td>1.5939</td>
<td>-2.7204</td>
<td>-0.0923</td>
<td>-1.6761</td>
<td>0.4326</td>
<td>6.7538</td>
<td>2.2848</td>
<td>17,273</td>
<td>28.60%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0281)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0001)</td>
<td>(0.0000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M&amp;A</td>
<td>-1.809</td>
<td>16.6669</td>
<td>-1.2364</td>
<td>3.0199</td>
<td>0.0039</td>
<td>-0.4589</td>
<td>0.1122</td>
<td>-10.7901</td>
<td>0.3175</td>
<td>17,273</td>
<td>6.46%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.0001)</td>
<td>(0.0000)</td>
<td>(0.8161)</td>
<td>(0.0000)</td>
<td>(0.0002)</td>
<td>(0.0000)</td>
<td>(0.3392)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: This table presents logistic regression results of stock issuance activities on abnormal positive tone. In Panel A, the dependent variable SEO is set to one when the Sale of Common and Pref. Stock in one year after earnings press release is bigger than ten percent of beginning total assets; and is zero otherwise. In Panel B, the dependent variable M&A is set to one if the amount of acquisition in one year after earnings press release is bigger than ten percent of beginning total assets; and is zero otherwise. ABTONE is abnormal positive tone, measured as the residuals from the annual cross-sectional model of \( TONE_{jt} = \alpha + \beta_0 \text{ROA}_j + \beta_1 \text{RET}_j + \beta_2 \text{SIZE}_j + \beta_3 \text{BTM}_j + \beta_4 \text{STD_RET}_j + \beta_5 \text{STD_EARN}_j + \beta_6 \text{AGE}_j + \beta_7 \text{BUSSEG}_j + \beta_8 \text{GEOSEG}_j + \varepsilon_j \). AA is the discretionary accruals calculated using the cross-sectional modified Jones model. EARN is the earnings before extraordinary items scaled by beginning total assets. RET is the buy-and-hold returns for the 12-month period ending three months after the fiscal year end. SIZE is the logarithm of market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end. STD_EARN is the standard deviation of EARN over last five years. P-values are italics and reported in parentheses. Bold numbers indicate significance at less than the 5% level for two-tailed tests.
Table 7 Abnormal Positive Tone and Option Grants

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>α</th>
<th>ABTONE</th>
<th>AA</th>
<th>EARN</th>
<th>SIZE</th>
<th>BTM</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Pseudo R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRANTS₁</td>
<td>-6.8118</td>
<td>-9.4443</td>
<td>-0.9335</td>
<td>1.5967</td>
<td>0.6709</td>
<td>0.0611</td>
<td>-0.0287</td>
<td>10.0473</td>
<td>0.5740</td>
<td>17,273</td>
<td>27.62%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.0000)</td>
<td>(0.0134)</td>
<td>(0.0030)</td>
<td>(0.0000)</td>
<td>(0.0000)</td>
<td>(0.3242)</td>
<td>(0.3714)</td>
<td>(0.0000)</td>
<td>(0.0781)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Panel B   |     |        |      |      |      |       |       |         |          |      |           |
| GRANTS₁₊₁| -7.1062 | -8.2178 | -1.6372 | 1.8826 | 0.6926 | 0.0535 | -0.0175 | 16.4584 | -0.0171 | 17,273 | 28.32%    |
| p-value  | (0.0000) | (0.0713) | (0.0000) | (0.0000) | (0.0000) | (0.4497) | (0.6209) | (0.0000) | (0.9656) |      |           |

Notes: This table presents logistic regression results of option grant on abnormal positive tone. In Panel A, the dependent variable Grant is option grants of CEO deflated by Salary in the current year. In Panel B, the dependent variable GRANTS₁₊₁ is option grants of CEO deflated by Salary in the year after earnings press release. ABTONE is abnormal positive tone, measured as the residuals from the annual cross-sectional model of \( TONE_{jt} = \alpha + \beta_0 ROA_{jt} + \beta_1 RET_{jt} + \beta_2 SIZE_{jt} + \beta_3 BTM_{jt} + \beta_4 STD_RET_{jt} + \beta_5 STD_EARN_{jt} + \beta_6 AGE_{jt} + \beta_7 BUSSEG_{jt} + \beta_8 GEOSEG_{jt} + \varepsilon_{jt} \). AA is the discretionary accruals calculated using the cross-sectional modified Jones model. EARN is the earnings before extraordinary items scaled by beginning total assets. RET is the buy-and-hold returns for the 12-month period ending three months after the fiscal year end. SIZE is the logarithm of market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year end. STD_EARN is the standard deviation of EARN over last five years. P-values are italics and reported in parentheses. Bold numbers indicate significance at less than the 10% level, 2-tailed tests.
### Table 8 Market Immediate and Delayed Reactions to Abnormal Positive Tone

<table>
<thead>
<tr>
<th>DEP. VAR.</th>
<th>α</th>
<th>RABTONE</th>
<th>RAA</th>
<th>RSUE</th>
<th>SIZE</th>
<th>BTM</th>
<th>RET</th>
<th>STD_RET</th>
<th>STD_EARN</th>
<th>#obs</th>
<th>Adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Immediate Stock Return Reactions during the Earnings Announcements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR (-1,+1)</td>
<td>0.0193</td>
<td>0.0074</td>
<td>0.0054</td>
<td>0.0416</td>
<td>-0.0019</td>
<td>0.0077</td>
<td>0.0146</td>
<td>-0.2135</td>
<td>-0.029</td>
<td>16689</td>
<td>3.81%</td>
</tr>
<tr>
<td>T-stat</td>
<td>(6.39)</td>
<td>(2.77)</td>
<td>(-2.56)</td>
<td>(16.31)</td>
<td>(-4.97)</td>
<td>(3.27)</td>
<td>(6.83)</td>
<td>(-4.83)</td>
<td>(-2.27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel B: Delayed One Quarter Return Reactions after Earnings Announcements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR (+2,+61)</td>
<td>0.0474</td>
<td>-0.0244</td>
<td>-0.027</td>
<td>0.0217</td>
<td>-0.0032</td>
<td>0.0453</td>
<td>0.0305</td>
<td>-0.2533</td>
<td>-0.1258</td>
<td>16689</td>
<td>1.66%</td>
</tr>
<tr>
<td>T-stat</td>
<td>(1.13)</td>
<td>(-2.42)</td>
<td>(-4.32)</td>
<td>(1.66)</td>
<td>(-0.89)</td>
<td>(4.91)</td>
<td>(2.05)</td>
<td>(-0.33)</td>
<td>(-1.78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel C: Delayed Two Quarter Return Reactions after Earnings Announcements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR (+2,+121)</td>
<td>0.144</td>
<td>-0.047</td>
<td>-0.0383</td>
<td>0.0461</td>
<td>-0.0163</td>
<td>0.0504</td>
<td>0.0098</td>
<td>0.6281</td>
<td>-0.1918</td>
<td>16571</td>
<td>1.21%</td>
</tr>
<tr>
<td>T-stat</td>
<td>(1.54)</td>
<td>(-2.95)</td>
<td>(-1.90)</td>
<td>(2.81)</td>
<td>(-1.99)</td>
<td>(3.15)</td>
<td>(0.28)</td>
<td>(0.31)</td>
<td>(-1.45)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: This table presents regression results of market immediate and delayed reactions to abnormal positive tone. In Panel A, the dependent variable CR (-1,+1) is the three day cumulative returns one trading day before to one trading day after the earnings announcement. In Panel B, the dependent variable CR (+2,+61) is the sixty day cumulative stock returns starting the second day after the earnings announcement. In Panel C, the dependent variable CR (+2,+121) is the one hundred and twenty day cumulative stock returns starting the second day after the earnings announcement. ABTONE is abnormal positive tone. AA is the discretionary accruals calculated using the cross-sectional modified Jones model. SUE is the standard unexpected earnings, calculated as the change in quarter earnings scaled by its standard deviations, calculated over previous twenty quarters data (with minimum 10 observations) SUE is winsorized at the value of 5. RET is the buy-and-hold returns for the 12-month period ending three months after fiscal year-end. RABTONE, RAA, RSUE are transformed variables by replacing their value with their decile rank, subtracting one, and dividing by 9. SIZE is the market value of equity at fiscal year end. BTM is the book-to-market ratio measured at fiscal year end. STD_RET RET is the standard deviation of monthly stock returns for the 12-month period ending three months after fiscal year-end. STD_EARN is the standard deviation of EARN over last five years. The t-statistics (in parentheses and italics) are based on two-way clustering at both year and firm levels. Bold numbers indicate significance at less than the 5% level (2-tailed tests).