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Tone Management

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ABSTRACT: We investigate whether and when firms manage the tone of words in earnings press releases, and how investors react to tone management. We estimate abnormal positive tone, *ABTONE*, as a measure of tone management from residuals of a tone model that controls for firm quantitative fundamentals such as performance, risk, and complexity. We find that *ABTONE* predicts negative future earnings and cash flows, is positively associated with upward perception management events, such as, just meeting/beating thresholds, future earnings restatements, *SEO*, and *M&A*, and is negatively associated with a downward perception management event, stock option grants. *ABTONE* has a positive stock return effect at the earnings announcement and a delayed negative reaction in the one and two quarters afterward. Balance sheet constrained firms and older firms are more likely to employ tone management over accruals management. Overall, the evidence is consistent with managers using strategic tone management to mislead investors about firm fundamentals.

Keywords: tone management; qualitative disclosure; earnings management; market efficiency; behavioral finance.

I. INTRODUCTION

Man

he tone of the qualitative text in earnings press releases can 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 engage in tone management for

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informative or strategic purposes, and whether and to what extent the capital market discounts for strategic motives, if any, when reacting to earnings announcements.

Quantitative information by itself provides investors with an incomplete picture of a 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). The rhetoric employed in the qualitative text of earnings press releases facilitates encoding and processing of the quantitative disclosures and generally informs the reader. However, when agency incentives are present, the rhetoric could instead mislead the reader. As Rapp (2010, Section 4.2) writes, rhetoric is a value-neutral tool "that can be used by persons of virtuous or depraved character. This capacity can be used for good or bad purposes; it can cause great benefits as well as great harms."

Earnings press releases, being voluntary, are not subject to explicit rules about the disclosure, so management has wide latitude in the qualitative presentation of the quantitative information. We are interested in studying how the tone of the press release affects readers' response to the communication, and whether and how tone can be used as a tool to affect investors' perception about the firm. As the old adage goes, "It's not what you say; it's how you say it."

In a neutral presentation of the press release, tone will vary with the quantitative content of the disclosure, with optimism in tone increasing in firm performance. We decompose net positive tone, the difference in the frequency of positive minus negative words in earnings press releases, into two components. The normal component reflects a neutral tone that is commensurate with concurrent information about current and expected future firm quantitative performance.¹ The residual component, abnormal positive tone, is the main variable of interest in our study and is intended to capture the discretionary component of tone.

The tone of the earnings press release can be a tool for managers either to improve understanding of, or to obscure, firm fundamentals. Concurrent quantitative information may not fully reflect all available information about future cash flows, partly owing to limitations in generally accepted accounting principles (GAAP). When economic fundamentals are better than indicated by the quantitative information, an abnormal positive tone of the press release can be used to signal better future prospects. In this case, abnormal positive tone helps inform investors about the anticipated improved future prospects. On the other hand, tone management may be employed opportunistically to mislead investors by being unduly positive or negative relative to the reported quantitative information, even when this leads to a less accurate perception of fundamentals.

In sum, a key goal for this paper is to test whether tone management in earnings press releases informs or misinforms investors. We examine how abnormal positive tone relates to future firm performance, whether abnormal tone is more likely used in situations where managerial strategic incentives to manipulate investor perception are present, and whether and how investors react to tone management at the time of, and subsequent to, the earnings announcements.

Most accounting capital markets research studies quantitative information reported by firms. However, there is growing interest in the qualitative aspects of various types of firm communications with investors, such as in particular sections of 10-K reports, earnings press releases, and conference calls.² We select earnings press releases to study tone management for several reasons. Earnings press releases make up a large proportion of news events about the firm that are consistently more timely and significant than financial reports to the SEC. Furthermore,

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.



¹ We control for concurrent quantitative information using data from Compustat, CRSP, I/B/E/S, and First Call CIG. Details of the tone model are in the "Abnormal Positive Tone Measure in Earnings Press Releases" section.

greater discretion about content and format is afforded by these voluntary disclosures than by the mandatory 10-K reports. Finally, the trading volume and stock price reactions are generally larger around earnings announcements than at any other time in the year except for special event announcements.

Section II describes how tone optimism and pessimism have been measured in various ways in the existing literature. Our main tests use the classification of words with positive and negative tone by Loughran and MacDonald (2011; hereafter, LM) because this dictionary list was developed specifically for accounting reports and business purposes. We also consider robustness of results with respect to two alternative word lists, Henry (2008) and Harvard's General Inquiry (GI).

We expect that various economic factors drive optimism in the tone of earnings press releases and therefore we use a benchmark model for tone that controls for firms' current and expected future performance, growth, risk, and complexity. Abnormal positive tone therefore captures effects that are orthogonal to the underlying quantitative fundamentals.³

We first examine whether abnormal positive tone in the earnings press release contains incremental information about future firm accounting performance. In our sample, we find that abnormal positive tone 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 sign of the relation between abnormal tone and future performance is crucial for distinguishing between whether abnormal positive tone informs or misinforms investors. The finding that abnormal positive tone predicts future *negative* performance is sufficient to reject the hypothesis that discretionary tone informs investors. It would be counterintuitive for managers to use an abnormally optimistic tone to signal poor future earnings or cash flows to investors. To corroborate whether abnormal positive tone misinforms, we further examine whether abnormal positive tone misinforms, we further examine whether abnormal positive tone misinforms.

The incentive to mislead investors may stem from a manager's desire for prestige, or from pecuniary motives associated with agency problems. Therefore, we investigate whether tone management is used in settings where managerial incentives to manipulate perceptions are present. We find that abnormal positive tone in earnings press releases increases the likelihood that the disclosed earnings of that period just meet or beat past earnings and analysts' consensus forecast, as well as the likelihood of future earnings restatements, new equity issuances, and mergers and acquisition activities, consistent with managers using abnormally optimistic tone when incentives to bias perceptions upward are present. We also find evidence for the opposite situation for stock option grants where the incentive to bias perceptions is downward. The strike price is often set at the prevailing market price at the time of grant. Our evidence suggests that abnormal positive tone decreases with the likelihood of stock option grants.

Next, we examine whether investors understand that abnormal positive tone contains negative information about future fundamentals. If investors cannot see through the managerial opportunism that is driving discretionary tone or if they discount insufficiently for the strategic motives, then abnormal positive tone will incite investor optimism beyond the level warranted by future fundamentals and cause an immediate positive market reaction at the earnings announcement. In

³ There is an obvious analogy between normal/abnormal tone and non-discretionary/discretionary accruals. Abnormal positive tone may capture managerial discretion on tone, including managers' biased estimation of future fundamentals, or simply noise. Therefore, analogous to the literature on discretionary accruals, we test whether abnormal positive tone predicts future firm performance, and whether it is associated with strategic incentives.



such cases, because information about poor future earnings or cash flows arrives either in subsequent financial reports, analysts' reports, or the business press, there should be a return reversal so that the delayed reaction to abnormal positive tone is negative.⁴

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. The return reversal in the post-announcement period is strong evidence of an over-reaction to abnormal positive tone at the earnings announcement, and is in sharp contrast with the evidence of a continuation of the market response to extreme earnings news or post-earnings announcement drift in the literature.

The past literature on discretionary accruals suggests that accruals management is a tool to manipulate investor perception about a firm (Teoh, Welch, and Wong 1998; Xie 2001). Therefore, we control for abnormal accruals in all of our tests to extract the incremental effect of abnormal positive tone to avoid spurious inferences. In additional analyses, we explore the relation between accruals management and tone management as alternative or complementary tools to manipulate perceptions. Among firms that use both accruals and tone management in a consistent direction, we find that tone management is more likely in older firms and firms facing higher balance sheet bloat, as proxied by lagged assets scaled net operating assets, and so are more constrained in further upward accruals management.

Finally, our main results are generally robust to the use of alternative dictionary lists, alternative abnormal positive tone model specification that includes publicly disclosed managers' expectation of future performance, alternative test methods that consider a seemingly unrelated regressions (SUR) system for various groups of strategic actions, and additional regression controls such as normal tone and investment opportunities. Overall, the evidence suggests that managers use tone management to mislead investors and other financial statement users.

Section II next discusses the background of the tone literature and contribution of our paper. Section III describes the sample and the estimation procedures for our variables, and discusses the sample descriptive statistics. Section IV documents the relation between abnormal positive tone and future financial performance. Section V examines whether abnormal positive tone presents in various strategic settings. Section VI investigates immediate and delayed market reactions to abnormal positive tone. Section VII presents additional analyses and robustness checks. Section VIII concludes.

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 2012; Demers and Vega 2011), analyst reports (Lehavy, Li, and Merkley 2011; Hsieh and Hui 2011; De Franco, Hope, Vyas, and Zhou 2013; Huang, Zang, and Zheng 2013), and conference calls (Larcker and Zakolyukina 2012; Frankel, Mayew, and Sun 2010). The different approaches to measure qualitative information include computational linguistics such as a naïve Bayesian algorithm (Li 2010; Huang et al. 2013), psychological dictionaries such as General Inquirer and

⁴ See Hirshleifer, Lim, and Teoh (2011) 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.



Diction (Kothari, Li, and 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 versus negative tone (Davis et al. 2012; Demers and Vega 2011; Frankel et al. 2010), readability (Li 2008; Hsien and Hui 2011), and self-reference bias (Larcker and Zakolyukina 2012).

With regard to outcomes investigated, several papers examine analysts' response to the qualitative dimension of disclosures. Lehavy et al. (2011) document that analyst following and the informativeness of their reports are greater for firms with less readable 10-Ks. Kravet and Muslu (2013) 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. (2012) 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 (2013), 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 toward analyst reports that are easier to read. In a similar vein, De Franco et al. (2013) find that stock trading volume is higher for firms with more readable analyst reports. Campbell, Chen, Dhaliwal, Lu, and Steele (2014) 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, Govindaraj, Livnat, and Segal 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, Lundholm, and Minnis (2013) find that, on average, the qualitative information in 10-K filings is very useful in assessing a firm's competition environment. 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 (2012) find that a linguistics-based deceptiveness measure in corporate executive answers to questions during quarterly earnings conference calls predict accounting manipulations better than a model based on discretionary accruals. Tama-Sweet (2010) finds that managers increase optimism in the tone of an earnings press release prior to exercising options when litigation risk is low. Davis and Tama-Sweet (2012) report greater tone pessimism in the MD&A than in the earnings press release when managers have strong incentives to report strategically and that tone pessimism in the MD&A predicts poor future earnings.

This paper differs from the above studies in the following ways. We view disclosure tone as jointly determined by economic fundamentals and managerial incentives. In other words, both truthful and strategic disclosures co-exist. Accordingly, we decompose tone into a non-discretion-ary component based on economic fundamentals, and a discretionary component that could reflect managerial incentives, manager's private information about future fundamentals, manager's biased estimation of fundamentals, or noise. Therefore, we test whether abnormal positive tone reveals managerial incentives to inform or misinform investors about future performance. Furthermore, we examine whether abnormal positive tone is related to various events that past literature has identified as associated with the presence of managerial incentives to bias investor perception. These events include firms just meeting or beating various earnings benchmarks, inflating earnings so that they subsequently had to be restated, issuing new equity, undertaking mergers and acquisitions, and granting stock options to managers. Third, in keeping with our emphasis on the



strategic use of tone, we provide evidence suggesting that abnormal positive tone misleads investors. We contribute to the market efficiency literature by systematically studying investors' contemporaneous and delayed responses to abnormal positive tone. Whereas several studies discussed above find that tone in various venues positively predicts future returns (e.g., Feldman et al. 2009; Demers and Vega 2011), we find that abnormal positive tone at the time of an earnings press release negatively predicts abnormal future returns. Our evidence is consistent with investors being temporarily misled by tone management and with subsequent market correction.⁵

Our study is also related to the strategic disclosure literature that documents opportunistic managerial disclosure choices. Schrand and Walther (2000) find evidence that managers strategically disclose a prior performance benchmark that the firm is able to beat in the earnings announcement, whereas we examine both positive and negative incentive effects using discretionary tone of the qualitative text in earnings announcements. While the tools differ, the goal of the disclosure choices reflects managerial incentives to affect investor perception differently than is warranted by the fundamentals. Finally, our study contributes to the literature on earnings management with a pilot exploration of how quantitative earnings management relates to qualitative tone management.

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 various settings associated with the presence of perception management. By systematically and collectively studying these settings, we provide evidence that abnormal positive tone is used to facilitate managerial incentives to mask weak future fundamentals and mislead investors.

III. SAMPLE AND DESCRIPTIVE STATISTICS

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, analysts' earnings forecasts data from I/B/E/S, seasoned equity offering (SEO) and merger and acquisition (M&A) effective dates from SDC, and option grants data for CEOs from ExecuComp. We first match earnings press releases with the CRSP/Compustat merged database by company name and announcement dates. The availability of earnings press release text data determines our sample period, 1997–2007. We eliminate observations without sufficient accounting and financial-market variables or with stock prices below \$1. Each year, all financial variables except returns are winsorized at the 1 percent level. We obtain 14,475 observations of firm-year abnormal positive tone as described in the "Abnormal Positive Tone Measure in Earnings Press Releases" section for details. Since we do not require firms to have future earnings, returns, or restatement data to estimate abnormal positive tone, the sample sizes vary across different test specifications and are noted in the tables.⁶

Variable Measurements

Discretionary Accruals

Following prior literature (Dechow, Sloan, and Sweeney 1995), we measure discretionary accruals using the cross-sectional modified Jones model. The sample period of 1997–2007 permits

⁶ Our sample has more unique firms than past studies because we use an additional text source from Business Wire in addition to the PR Newswire to obtain earnings press releases. For comparison, Davis et al. (2012) examine 23,017 firm-quarterly observations from 1998–2003 and Demers and Vega (2011) examine between 14,649 and 20,899 firm quarterly observations from 1998–2006, which averages to less than 1,000 firms per quarter, whereas our annual sample averages about 1,300 firms per year. Our sample period is also longer.



⁵ Footnote 18 suggests some reasons why our findings differ from the prior literature.

us to use SFAS No. 95 statement of cash flow data in the following model to estimate accruals rather than using balance sheet data that Hribar and Collins (2002) suggest is less accurate:

$$TAcc_{jt} = EBEI_{jt} - (CFO_{jt} - EIDO_{jt})$$
(1)

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:

$$TAcc_{jt} = \beta_0 (1/Assets_{j,t-1}) + \beta_1 (\Delta Sales_{jt} - \Delta AR_{jt}) + \beta_2 PPE_{jt} + v_{jt}$$
(2)

where:

Assets = total assets;

 $\Delta Sales =$ annual change in sales;

 ΔAR = change in accounts receivable from operating activities; and

 PPE_{jt} = gross property, plant, and equipment, all scaled by lagged total assets.

Discretionary accruals (DA) are the regression residuals.

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. 2012), 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) using the General Inquirer software are not typically negative for financial reports.⁷ 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. Again following Loughran and McDonald (2011), if there are negation words (*no*, *not*, *none*, *neither*, *never*, and *nobody*) immediately before a positive word, we count the positive word as negative.⁸ We create the variable *TONE* as the frequency difference between the positive and the negative words scaled by total words in an earnings press release.⁹

Positive disclosure tone can arise for several reasons. It may merely be an expression of good current and expected financial performance. Alternatively, tone can be upwardly biased for multiple reasons. A positive bias in tone may be used by managers to signal to investors the private information about positive future performance that current quantitative disclosures fail to reveal, owing perhaps to GAAP constraints. Alternatively, positive bias may result from managers'



⁷ Words like *tax*, *liability*, or *foreign* are defined as negative words in the Harvard Psychological Dictionary, but have few negative connotations in financial reports.

⁸ The frequency of instances of double negatives, i.e., negation words immediately before other negative words, is 2 percent. The results are the same whether we ignore double negatives or count them as positive.

⁹ The results are qualitatively similar in terms of sign, magnitude, and statistical significance when we use the sum of positive and negative words as the denominator.

strategic attempts to mask poor current performance or to hype investors' perception about the future performance so as to mislead investors.

We decompose *TONE* into a normal component, *NTONE*, to reflect a neutral description of current available information about fundamentals, and an abnormal component *ABTONE*, our key independent variable that proxies for managerial strategic choice of tone either to inform or misinform 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 to avoid the look-ahead bias. The determinants are measures for current available fundamental information, growth opportunities, operating risks, and complexity. Specifically, the regression is:^{10,11}

$$TONE_{jt} = \alpha + \beta_0 EARN_{jt} + \beta_1 RET_{jt} + \beta_2 SIZE_{jt} + \beta_3 BTM_{jt} + \beta_4 STD_RET_{jt} + \beta_5 STD_EARN_{jt} + \beta_6 AGE_{jt} + \beta_7 BUSSEG_{jt} + \beta_8 GEOSEG_{jt} + \beta_9 LOSS_{jt} + \beta_{10} \Delta EARN_{jt} + \beta_{11} AFE_{jt} + \beta_{12} AF_{jt} + \varepsilon_{jt},$$
(3)

where:

EARN = earnings before extraordinary items scaled by lagged total assets;

RET = contemporaneous annual stock returns calculated using CRSP monthly return data;

SIZE =logarithm of market value of equity at fiscal year-end;

BTM = book-to-market ratio measured at fiscal year-end;

STD RET = standard deviation of monthly stock returns over the fiscal year;

STD_EARN = standard deviation of *EARN* calculated over the last five years, with at least three years of data required;

 $AGE = \log(1 + \text{age from the first year the firm entered the CRSP dataset});$

 $BUSSEG = \log(1 + \text{number of business segments})$, or 1 if item is missing from Compustat; and $GEOSEG = \log(1 + \text{number of geographic segments})$, or 1 if item is missing from Compustat.

We include three performance benchmarks because managers' assessment of current performance is often framed relative to benchmarks. The benchmarks are *LOSS*, an indicator variable set to 1 when *EARN* is negative, and is 0 otherwise; $\Delta EARN$ change in earnings before extraordinary item scaled by beginning total assets; and *AFE*, analyst forecast error, defined as I/B/E/S earnings per share minus the median of the most recent analysts' forecasts, deflated by stock price per share at the end of the fiscal year. Earnings, forecasts, and stock prices are all splitadjusted. We also include *AF*, analyst consensus forecast for one-year-ahead earnings per share,

¹¹ We also estimate Regression (3) at the industry-year level to obtain abnormal tone akin to the cross-sectional Jones model for estimating discretionary accruals. Our results are quantitatively similar but statistically weaker. This is because the tone sample is considerably smaller than the Compustat population and there are 13 independent variables in Regression (3) versus only three in the modified Jones model. Requiring at least 20 degrees of freedom for each annual cross-sectional regression for proper estimation significantly reduces sample size.



¹⁰ 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 (*M&A*) 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 pertain 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 our smaller adjusted R² as compared to 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 R² improves, but remains smaller than Li (2010), when instruments for strategic incentives are included. The improvement in R² supports our perspective that *ABTONE* is indeed related to strategic motives. See also the "Alternative Tone Models" section for other specifications.

scaled by stock price per share at the end of the fiscal year to control for managerial assessment about future performance.¹²

The tone model determinants are selected to control for information about firm fundamentals to obtain abnormal positive tone. Dechow, Ge, and Schrand (2010) suggest that the three determinants of firm fundamental value for a firm existing over multiple periods are cash flows generated during the current period, the present value of cash flows that will be generated in the future as a result of current actions, and the present value of the change in liquidation value as a result of current actions. We include profitability (*EARN*) and three earnings performance benchmarks (*LOSS*, $\Delta EARN$, and *AFE*) to capture the cash flows generated during the current period. We exploit the forward-looking property of market variables, stock returns (*RET*) and book-to-market ratio (*BTM*), to capture information about growth and the present value of consequent future cash flows beyond what is conveyed by current accounting numbers. In addition, we include analyst earnings forecasts (*AF*) as a direct proxy for expectations of future financial performance. We also include a loss indicator because it conveys information about liquidation value (Hayn 1995). We further include volatility of stock returns (*STD_EARN*) to 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, profitable, growing, and has more volatile stock returns, fewer business segments, and strong performance relative to analyst earnings forecast. Normal positive tone, *NTONE*, is the predicted value of Regression (3). *ABTONE*, abnormal positive tone, is the residual of Regression (3). By construction, *ABTONE* is therefore designed to be unrelated to firm fundamentals and business environment such as current market and financial performance, growth prospects, and firm operating risk and complexity.

Summary Statistics

Each year, we obtain the mean, median, standard deviation, 1st, 25th, 75th, and 99th 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 (median) *TONE* is 0.43 percent (0.42 percent), indicating disclosure tone in earnings press releases is generally relatively optimistic. In contrast, Loughran and McDonald (2011) report higher mean negative words than positive words in 10-K filings. The greater net optimism in disclosure tone in earnings press releases over the 10-K filings as a venue to hype the firm. The higher salience of the more timely earnings announcement and the lower litigation concern for the earnings press release likely increases the net benefits to tone management in the earnings press release relative to tone management in the 10-K.¹³ By

¹² We thank a referee for suggesting the performance benchmarks and expectations of future performance variables as tone model determinants. Inclusion of analyst forecast variables reduces our sample and biases the sample toward larger companies with analysts' data. The results of an earlier version of our study show that the full set of analyses is robust with respect to a tone model that excludes analysts' data variables, *AFE* and *AF*. Furthermore, Table 10 reports robustness to including managerial forecasts to proxy for managerial expectations of future performance in the tone model. It is debatable whether expectations of future performance variables are tone determinants or proxies for strategic incentives to manage tone. Excluding these variables from the tone model likely biases abnormal positive tone upward and, therefore, biases toward finding a positive relation between abnormal tone and future performance and against our results that abnormal tone predicts negative future accounting and returns performance.

¹³ The 10-K report is audited, its form and format are dictated to a large extent by accounting rules and regulations, and it 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. Davis and Tama-Sweet (2012) report greater pessimism in the MD&A than in the earnings press release, which they attribute to investors reacting less to MD&A disclosures than to disclosures in earnings press releases.

Dependent Var. TONE

TABLE 1

Expected Tone Model^a

 $\begin{aligned} TONE_{jt} &= \alpha + \beta_0 EARN_{jt} + \beta_1 RET_{jt} + \beta_2 SIZE_{jt} + \beta_3 BTM_{jt} + \beta_4 STD_RET_{jt} + \beta_5 STD_EARN_{jt} \\ &+ \beta_6 AGE_{jt} + \beta_7 BUSSEG_{jt} + \beta_8 GEOSEG_{jt} + \beta_9 LOSS_{jt} + \beta_{10} \Delta EARN_{jt} + \beta_{11} AFE_{jt} \\ &+ \beta_{12} AF_{jt} + \varepsilon_{jt}. \end{aligned}$

Dependent Var. TONE

•				-	
Indep. Var.	Coefficient	t-stat	Indep. Var.	Coefficient	t-stat
α	0.0057***	(7.02)	AGE	-0.0003	(-1.63)
EARN	0.0011**	(2.47)	BUS SEG	-0.0006^{***}	(-4.44)
RET	0.0000	(0.01)	GEO SEG	0.0002	(0.79)
SIZE	-0.0002^{***}	(-3.34)	LOSS	-0.0013^{***}	(-4.48)
BTM	-0.0013^{***}	(-4.52)	$\Delta EARN$	-0.0012	(-1.19)
STD_RET	0.0690***	(7.58)	AFE	0.0008***	(3.10)
STD_EARN	0.0000	(-0.05)	AF	-0.0001	(-0.30)

, * Indicates p < 0.05 and p < 0.01, respectively.

^a Number of observations: 14,475; Adjusted R²: 4.41%.

Variable Definitions:

TONE = (#positive words – #negative words)/total non-numerical words;

EARN = earnings before extraordinary items/beginning total assets;

RET = buy-and-hold monthly returns for 12 months ending three months after the fiscal year-end;

 $SIZE = \log(\text{market value of equity at the fiscal year-end});$

BTM = book-to-market ratio measured at the fiscal year-end;

STD_RET = standard deviation of RET over the last 12 months ending three months after the fiscal year-end;

 $STD_EARN =$ standard deviation of EARN over the last five years;

 $AGE = \log(1 + \text{#years since a firm appears in CRSP monthly file});$

 $BUSSEG = \log(1 + \# \text{ of business segments});$

 $GEOSEG = \log(1 + \# \text{ of geographic segments});$

LOSS = 1 if EARN is negative, 0 otherwise;

 $\Delta EARN$ = change in earnings before extraordinary items/beginning total assets;

AFE = (I/B/E/S actual EPS - median of most recent analysts' forecasts)/stock price at the fiscal year-end; and AF = analyst consensus forecast for one-year-ahead EPS/stock price at the fiscal year-end.

construction, the mean of *ABTONE* is 0. More importantly, *ABTONE* shows considerable variation within sample.

The summary statistics for the remaining variables are similar to those from previous literature. In the sample period, 13.13 percent of the sample beat or meet analysts' forecasts, 4.84 percent restate earnings in three years after the earnings announcement, 9.84 percent and 11.36 percent of firm-year observations engage in seasonal equity offering (*SEO*) and merger and acquisition (*M&A*) activities, respectively, and between 15 percent and 16 percent of firm-year observations award above median-sized stock option grants to CEOs as compensation.

The *ABTONE* measure as a proxy for discretionary tone is new to the literature. There are no official rules mandating specific words for voluntary disclosures such as the earnings press release, so total *TONE* itself could be regarded as discretionary. As a practical matter, words in the press release need to be truthful (Rule 10-b5 and litigation) and SEC Regulation G imposes restrictions on non-GAAP terms such as giving equal prominence to and reconciling non-GAAP with GAAP earnings. However, even words that are literally true can convey other implicit connotations. If *TONE* follows a simple random walk, then the change in tone, $\Delta TONE$, is also another potentially reasonable proxy for discretionary tone. Our purpose is to control for the tone components that are



			TABLE	2			
		De	escriptive St	atistics			
Variable	Mean	Median	Std. Dev.	P1	P25	P75	P99
TONE	0.0043	0.0042	0.0071	-0.0135	-0.0003	0.0090	0.0217
ABTONE	0.0000	0.0000	0.0068	-0.0170	-0.0042	0.0044	0.0167
DA	-0.0140	-0.0051	0.1082	-0.4059	-0.0518	0.0385	0.2717
EARN	-0.0056	0.0379	0.1957	-0.8613	-0.0255	0.0852	0.3446
CFO	0.0629	0.0800	0.1723	-0.6506	0.0128	0.1474	0.4494
RET	0.1726	0.0345	0.6460	-0.7335	-0.2228	0.3918	2.7812
SIZE	6.3041	6.1741	1.7431	2.8636	5.0360	7.4296	10.5974
BTM	0.5729	0.4563	0.5010	-0.2113	0.2646	0.7371	2.6471
STD RET	0.0340	0.0317	0.0147	0.0121	0.0227	0.0428	0.0786
STD EARN	0.0704	0.0380	0.0875	0.0000	0.0148	0.0899	0.4336
AGE	2.5860	2.4348	0.7780	1.3863	1.9705	3.1570	4.3599
BUSSEG	1.1418	0.9512	0.6199	0.6931	0.6931	1.4354	3.0725
GEOSEG	0.9542	0.6931	0.3971	0.6931	0.6931	1.0618	2.4935
LOSS	0.3013	0.0000	0.4557	0.0000	0.0000	0.8182	1.0000
$\Delta EARN$	0.0058	0.0053	0.1501	-0.4820	-0.0292	0.0380	0.6087
AFE	-0.0168	0.0003	0.1670	-0.3126	-0.0037	0.0020	0.0625
AF	0.0404	0.0565	0.1455	-0.3693	0.0315	0.0793	0.2045
JMBE_change	0.0697	0.0000	0.2531	0.0000	0.0000	0.0000	1.0000
JMBE analyst	0.1313	0.0000	0.3375	0.0000	0.0000	0.0000	1.0000
$RESTATE_{t+1}$	0.0193	0.0000	0.1146	0.0000	0.0000	0.0000	0.6364
$RESTATE_{t+2}$	0.0364	0.0000	0.1534	0.0000	0.0000	0.0000	0.7273
$RESTATE_{t+3}$	0.0484	0.0000	0.1756	0.0000	0.0000	0.0000	0.7273
SEO_{t+1}	0.0984	0.0000	0.2954	0.0000	0.0000	0.0000	1.0000
$M\&A_{t+1}$	0.1136	0.0000	0.3163	0.0000	0.0000	0.0000	1.0000
$GRANT_t$	0.1455	0.0000	0.3226	0.0000	0.0000	0.0000	0.9091
$GRANT_{t+1}$	0.1550	0.0000	0.3308	0.0000	0.0000	0.0000	0.9000
SUE	0.1351	0.1246	1.6015	-3.9172	-0.7044	1.1037	3.7571
CR(-1, +1)	0.0025	-0.0002	0.0597	-0.1360	-0.0269	0.0279	0.1889
CR(+2, +61)	0.0419	0.0255	0.2634	-0.5386	-0.1079	0.1646	0.8732
CR(+2, +121)	0.0607	0.0088	0.4606	-0.7069	-0.1869	0.2290	1.5891

Variable Definitions (not previously provided in Table 1):

0.6560

0.6561

DA = discretionary accruals calculated using the two-digit SIC industry cross-sectional modified Jones model;

0.3746

-0.1323

0.4392

0.8201

1.9759

Accruals = (income before extraordinary items - cash flow from operations net of extraordinary items and discontinued operations included in cash flows)/beginning total assets;

CFO = operating cash flows/beginning total assets;

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 $JMBE_change=1$ if $0 \le$ change in earnings/beginning market value of equity < 0.005, and 0 otherwise;

JMBE_analyst = 1 if $0 \le$ firm's analysts' consensus forecast error AFE < 0.01 (one cent), and 0 otherwise;

 $RESTATE_{t+i} = 1$ if the firm restates its earnings due to irregularities within year t+i, i = 1, 2, and 3, after earnings announcements, and is 0 otherwise;

(continued on next page)





 $SEO_{t+1} = 1$ when the Sale of Common and Pref. Stock (SSTK) one year after the earnings press release is greater than 10 percent of beginning total assets, and is 0 otherwise;

 $M\&A_{t+1} = 1$ if the amount of acquisition (AQC) in one year after the earnings press release is greater than 10 percent of beginning total assets, and is 0 otherwise;

 $GRANT_{t+i} = 1$ when the reported Black-Scholes fair value of stock options (from ExecuComp) granted to the CEO in year t+i, i=0, 1 is greater than the median grants of that year in the sample, and is 0 otherwise;

SUE = standardized unexpected earnings, calculated as the change from same quarter last year's earnings scaled by its standard deviations, calculated over previous 20 quarters data, with at least ten observations available. SUE is winsorized at the value of 5;

TABLE 2 (continued)

CR(-1, +1) = three-trading day cumulative stock returns one trading day before to one trading day after earnings announcements;

CR(+2, +61) = 60-trading day cumulative stock returns starting the second day after earnings announcements;

dictated by quantitative performance, leaving *ABTONE* to represent only the discretionary component. Therefore, a good discretionary tone proxy should have little or no correlation with quantitative measures of firm fundamentals. We also prefer the discretionary tone to reflect strategic incentives and so would like the measure to be unrelated to managerial style. Therefore, we want a proxy that has low time-series persistence.¹⁴

Table 3, Panel A, reports the Spearman correlations of 16 firm fundamental characteristics with *ABTONE* in column (1), *TONE* in column (2), and $\Delta TONE$ in column (3). The 16 fundamental characteristics represent Dechow et al.'s (2010) three exhaustive dimensions of firm fundamental values, and investment growth opportunity proxies, which are beginning asset-scaled *R&D*, and beginning asset-scaled capital expenditure (*CAPEX*). The results show that *ABTONE* has much less correlation with fundamentals. *ABTONE* is significantly correlated with six of the 16 characteristics, whereas *TONE* and $\Delta TONE$ are significantly correlated with 13 and 11 firm characteristics, respectively. Further, the statistically significant *ABTONE* correlations are much smaller in absolute magnitude than the corresponding correlations involving *TONE* and $\Delta TONE$.

Table 3, Panel B, reports the cross-sectional average of each individual firm's time-series persistence of *ABTONE*, *TONE*, and $\Delta TONE$. To calculate average persistence, we regress *ABTONE*, *TONE*, or $\Delta TONE$ on its respective one-year lagged variable for all cases with at least five years of observations for each firm and then average the coefficients on the lagged variable across all firms in the sample. The average persistence of *ABTONE*, *TONE*, and $\Delta TONE$ is 0.0509, 0.1016, and -0.3470 respectively.

In sum, we find that *ABTONE* has the smallest persistence and the smallest absolute correlations with firm fundamentals when compared to *TONE* and $\Delta TONE$. These results support our choice of *ABTONE* as a better proxy for discretionary tone than the other two measures.

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 next investigate whether it can identify the effects of strategic managerial behavior by testing its ability to predict future financial performance incremental to the reported financial numbers and controls. If *ABTONE* predicts positive future earnings and cash flows, then it contains incremental managerial private information that cannot be conveyed through reported earnings, owing to GAAP constraints. On the other hand, if *ABTONE* predicts no/negative future earnings and cash flows, then managers likely use tone to simply hype or mask poor future performance to mislead investors.

We examine the relation between ABTONE and future one- to three-year-ahead financial performance as measured by either earnings or cash flows from operations in the following

¹⁴ We thank an anonymous referee for suggesting these tests. Unlike our research objective, some prior studies discussed in Section II examine whether tone conveys fundamental information, so *TONE* or $\Delta TONE$ is sufficient for their purposes.



CR(+2, +121) = 120-trading day cumulative stock returns starting the second day after earnings announcements; and NOA = asset-scaled net operating assets at the beginning of the fiscal year. NOA is calculated according to Hirshleifer et al. (2004).

TABLE 3

Abnormal Positive Tone Correlations with Firm Characteristics and Persistence

Panel A: Spearman Correlation between Tone and Firm Characteristics

Variable	ABTONE	TONE	ΔΤΟΝΕ
EARN	0.0389	0.0561	0.0464
RET	-0.0013	-0.0057	0.0374
SIZE	-0.0040	-0.0928	0.0057
BTM	-0.0262	-0.0989	-0.0343
STD RET	0.0061	0.1663	-0.0186
STD EARN	-0.0045	0.0345	0.0046
AGE	-0.0001	-0.1065	0.0153
BUSSEG	-0.0026	-0.1062	-0.0015
GEOSEG	-0.0084	-0.0420	0.0008
LOSS	0.0035	0.0085	-0.0385
$\Delta EARN$	0.0210	0.0389	0.0750
AFE	0.0344	0.0365	0.0321
AF	-0.0266	-0.0507	0.0091
CFO	-0.0083	-0.0092	0.0191
R&D	0.0903	0.1492	0.0178
CAPEX	-0.0205	0.0265	0.0101
Panel B: Persistence	of Tone		
	ABTONE	TONE	ΔΤΟΝΕ
PERSISTENCE	0.0509	0.1016	-0.3470

Bold numbers indicate significance at less than the 5 percent level.

This table reports the Spearman correlation coefficients of abnormal positive tone with firm characteristics and persistence.

All other variables are as defined in Tables 1 and 2.

Variable Definitions:

R&D = R&D expenditure scaled by beginning total assets; and CAPEX = capital expenditure scaled by beginning total assets.

regressions:

$$EARN_{jt+n} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(4)

where n = (1, 2, or 3),

$$CFO_{jt+n} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(5)

where n = (1, 2, or 3).

Table 4 presents the estimation results of Regression (4) in Panel A and Regression (5) in Panel B. In addition to controlling for the two-digit SIC industry and year dummies, we present clustered



Panel A: Future EarninDep. Var. α $Dep. Var.$ α $EARN_{t+1}$ -0.0226 -0.0256 -0.0256 $-5stat$ (-1.25) (-1.25) (-1.25) -0.0208 -0.0208 -0.0208 -0.0208 -1.251 (-1.25) -1.251 (-1.25) -1.251 (-1.26) -1.261 (-1.26) -1.261 (-1.26) -1.261 (-1.26) -1.261 (-1.26) -2602 α $-27O_{t+1}$ (0.0338) -2602 (-1.16) -2602 (-1.16) -2602 (-1.16) -2602 (-1.16) -2602 (-1.16) -2602 (-1.16) -2702 (-1.16)	igs and Ab igs and Ab <i>STONE</i> 0.3021** (-) 0.42) 0.3935* (-) 0.6020* 0.69) (10ws and 1	Abnormal normal Positi DA DA DA DA DA $-0.2617***$ -14.07 -14.07 -14.07 $-0.2363***$ $(-0.2353***)$ (-9.37) (-9.37) DA	Positive Tone ve Tone EARN 0.6214*** 0.6214*** 0.6214*** 0.6214*** 0.6382 0.793 0.793 0.793 1.793 0.5782*** 0.5782*** 0.5782*** 0.5782***	ne and Fut <u>SIZE</u> .0030*** .0035** .0035** .0038*** .32)	ure Finan BTM -0.0045 (-1.05) -0.0023 (-0.46) -0.0056 (-1.06) (-1.06) BTM	cial Perforr <i>RET</i> 0.0170*** (2.98) 0.0049 (0.68) -0.0005 (-0.08)	nance STD_RET -1.5643*** (-4.95) -1.5719*** (-5.01) -1.2872*** (-4.69)	<i>STD_EARN</i> -0.0569* (-1.67) -0.0645* (-1.93) -0.0681 (-1.63)	No. Obs. 12,640 11,542 9,920	Adj. R 54.21% 38.21%
Panel A: Future EarninDep. Var. α Dep. Var. α ABEARN _{t+1} -0.0226 -0.0226 -0.0226 -0.0208 -0.0208 -0.0208 -0.0208 -0.0208 -0.0208 -0.0208 -0.0208 -0.0338 -0.0338 -0.0338 -0.0338 -0.0338 -0.0338 -0.0338 -0.0338 -0.00338 -0.00338 -0.00338 -0.00338	ngs and Ab <i>BTONE BTONE</i> .3021** .3335* .3335* .69) .69) .69) .69) .69) .69)	mormal Positi DA DA -0.2617*** -14.07) -14.07) -0.2363*** (12355**** (-9.37) (12355**** DA DA	ve Tone <i>EARN</i> 0.6214*** 0.4596*** (3.0.3782*** (7.93) (3.17	SIZE).0030***).0030*** 2.00).0038*** 3.32 SIZE	BTM -0.0045 (-1.05) -0.0023 (-0.46) -0.0056 (-1.06) BTM	RET 0.0170**** (2.98) 0.0049 (0.68) -0.0005 (-0.08)	STD_RET -1.5643*** (-4.95) -1.5719*** (-5.01) -1.2872**** (-4.69)	STD_EARN -0.0569* (-1.67) -0.0645* (-1.93) -0.0681 (-1.63)	No. Obs. 12,640 11,542 9,920	Adj.R ² 54.21% 38.21%
Dep. Var. α AB $EARN_{t+1}$ -0.0226 $-0.$ F -stat (-0.82) (-2.2) $EARN_{t+2}$ -0.0266 $-0.$ $EARN_{t+2}$ -0.0566 $-0.$ F -stat (-1.25) (-1.25) $EARN_{t+3}$ -0.0208 $-0.$ E -stat (-0.76) $(-1.$ F -stat (-0.76) $(-1.$ P -stat (-0.76) $(-1.$ P -stat (-0.76) $(-1.$ CFO_{t+1} (-0.76) $(-1.$ CFO_{t+1} 0.0338 $-0.$	\$TONE .3021** .3021** .3935* .69) .69) .69) ABTONE	DA -0.2617*** -14.07) -14.07) (1 -0.2363*** (1 -0.2355*** (1 -0.2355*** (1 -0.2355*** (1 -0.2355 -0.2355 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.235 -0.237 -0.237 -0.237 -0.237 -0.237	EARN 0.6214*** 0 0.4596*** 0 0.3382 0.3782*** 0 0 1.793 0 0 EARN 10 10	SIZE 1.0030*** 1.0035** 1.0035** 1.0038*** 1.32) 1.32)	BTM -0.0045 (-1.05) -0.0023 (-0.46) -0.0056 (-1.06) BTM	RET 0.0170**** (2.98) 0.0049 (0.68) (-0.08) (-0.08)	<i>STD_RET</i> -1.5643*** (-4.95) -1.5719*** (-5.01) -1.2872*** (-4.69)	STD_EARN -0.0569* (-1.67) -0.0645* (-1.93) -0.0681 (-1.63)	No. Obs. 12,640 11,542 9,920	Adj. R ² 54.21% 38.21%
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		-0.2617*** -14.07) (14.07) (5.81) (-5.81) (-9.37) (-9.37) (-9.37) (DA	0.6214*** (3.87) (0.4596*** (8.69) (0.3782*** (7.93) (7.93) (EARN	0.0030*** 3.05) 0.0035** 0.0038*** 3.32) 3.32) SIZE	-0.0045 (-1.05) -0.0023 (-0.46) -0.0056 (-1.06) <i>BTM</i>	0.0170*** (2.98) 0.0049 (0.68) -0.0005 (-0.08)	-1.5643*** (-4.95) -1.5719*** (-5.01) -1.2872*** (-4.69)	$\begin{array}{c} -0.0569 \\ (-1.67) \\ -0.0645 \\ (-1.93) \\ -0.0681 \\ (-1.63) \end{array}$	12,640 11,542 9,920	54.21% 38.21%
$\begin{array}{ccccc} \text{-Stat} & (-0.82) & (-2.2) \\ 2ARN_{r+2} & -0.0566 & -0. \\ \text{-stat} & (-1.25) & (-1.1) \\ 2ARN_{r+3} & -0.0208 & -0. \\ \text{-stat} & (-0.76) & (-1.1) \\ \text{-stat} & (-0.738 & -0. \\ \text{-2FO}_{r+1} & 0.0338 & -0. \\ \text{-2fO}_{r+1} & 0.0338 & -0. \\ \text{-116} & (-1.16) & (-1.16) \\ \text{-2fO}_{r+1} & (-1.16) & (-1.16) & (-1.16) \\ \text{-2fO}_{r+1} & (-1.16) & (-1.16) & (-1.16) & (-1.16) \\ \text{-2fO}_{r+1} & (-1.16) & (-1.16) & (-1.16) & $		14.07) (1 -0.2363*** (-0.2355*** (-0.2355*** (-9.37) (-9.37) (Abnormal Pos	5.8(1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	5.05) (0035** (0038*** (3.32) (3.32) (3.32)	(-1.05) -0.0023 (-0.46) -0.0056 (-1.06) BTM	(2.98) 0.0049 (0.68) -0.0005 (-0.08)	(-4.95) -1.5719*** (-5.01) -1.2872*** (-4.69)	(-1.67) -0.0645* (-1.93) -0.0681 (-1.63)	11,542 9,920	38.21%
stat (-1.25) (-1. ARN_{r+3} (-0.208 (-1. -stat (-0.76) (-1. Panel B: Future Cash F 2FO_{r+1} (0.0338 - AB_{r+1} (1.16) (-1.	.68) () .6020* () .69) () .7 Jows and .	(-5.81) (-0.2355*** (-9.37) (Abnormal Pos DA	8.69) (3 0.3782*** (7.93) (3 itive Tone EARN	2.00) 0.0038*** 3.32) SIZE	(-0.46) -0.0056 (-1.06) <i>BTM</i>	(0.68) -0.0005 (-0.08)	(-5.01) -1.2872*** (-4.69)	(-1.93) -0.0681 (-1.63)	9,920	
stat (-0.76) $(-1.$ stat (-0.76) $(-1.$ anel B: Future Cash F ep. Var. $\alpha \xrightarrow{A} \frac{A}{-2}$	(1000) (1	9.37) () Abnormal Pos DA	(7.93) (7	s.32) SIZE	(-1.06) BTM	(-0.08)	(-4.69)	(-1.63)	1110	30.51%
anel B: Future Cash F ep. Var. $\alpha = \frac{A}{0.0338} - \frac{A}{-1000000000000000000000000000000000000$	flows and . ABTONE	Abnormal Pos DA	itive Tone EARN	SIZE	BTM	L L L				
$\begin{array}{c c} \text{ep. Var.} \\ \hline \text{PO}_{i+1} \\ \hline PO_{i+1} \\ \hline 0.0338 \\ \hline 0.0338 \\ \hline - \\ \hline \\$	ABTONE	DA	EARN	SIZE	BTM	DET				
FO_{t+1} 0.0338 – C_{ctat} (1.16) (–						ITT	STD_RET	STD_EARN	No. Obs.	Adj. R ²
ctat (116) (-	-0.3609***	-0.3717^{***}	0.5680^{***}	0.0062***	-0.0033	0.0073*	-0.9005^{***}	-0.0336	12,624	54.19%
	-3.16)	(-20.45)	(12.76)	(7.18)	(-0.81)	(1.74)	(-4.81)	(-1.33)		10.400
$FU_{t+2} = 0.0498 = -$				0.0044**** (3.04)	-0.000	0.0040	-1.0403*** (_5 45)	-0.001	870,11	49.49%
FO_{t+3} 0.0713*** -	-0.5725*	-0.2741^{***}	0.3803***	0.0033***	-0.0103	** 0.0008	-0.9543***	-0.0373	9,908	35.63%
stat (3.08) (-	-1.92)	(-9.23)	(9.31)	(4.18)	(-2.04)	(0.16)	(-4.67)	(-0.89)		
, **, *** Indicates $p < 0.10$, statistics based on two-way c his table reports the results of the	$\frac{1}{10} < 0.05$, an clustering at b the regression	In $p < 0.01$, respending the firm level of future performs	ctively. and the year lev ance on <i>ABTON</i>	el are reporte E and other co	d in parenthe ntrol variable	ses. s. The depende	nt variables are E	ARN in one to thi	ree years ahe	id in Panel
TONE _{ji} = $\alpha + \beta_0 EARN_{ji}$ - $+ B_{11}AFE_{ii} + L$	$+ \beta_1 RET_{jt} + \beta_{12} AET_{jt} + \beta_{12} AET_{jt} + \beta_{21} AET_$	$\beta_2 SIZE_{jt} + \beta_3 BTM$	$\beta_{jt} + eta_4 STD_RET$	$\beta_{jt}^{r} + \beta_5 STD_E$	$ARN_{jt}+eta_{6}AG$	$\partial E_{jt} + \beta_7 BUSS$	$EG_{jt}+eta_8 GEOSE$	$(G_{jt}+eta_9LOSS_{jt})$	$+ \beta_{10} \Delta EARN$	<i>ji</i>
ndustry and year fixed effects of variables are as defined in	Tables 1 and	in the regressions, 2.	, but are not rep	orted.						

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t-statistics by firm and year to correct for cross-sectional and time-series dependence of errors in all the relevant tests throughout the paper (Peterson 2009; Gow, Ormazabal, and Taylor 2010).¹⁵ For all horizons from one to three years ahead, the coefficients of *ABTONE* in future earnings and cash flows regressions are negative and significant. The *ABTONE* coefficients are -0.30, -0.39 and -0.60 for one- to three-year-ahead *EARN* regressions, respectively. A one standard deviation increase (0.0068) in *ABTONE* implies a decrease of 0.20 percent, 0.27 percent, and 0.41 percent in the one- to three-year-ahead earnings (*EARN*) respectively. For comparison, the 0.41 percent decline amounts to about 11 percent of the median earnings (*EARN*), which is 3.79 percent for the sample.¹⁶

For *CFO* regressions, the coefficients on *ABTONE* in Table 4, Panel B are -0.36, -0.62, and -0.57 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 0.24 percent, 0.42 percent, and 0.39 percent, respectively. The 0.39 percent decline amounts to 5 percent of the median *CFO* of 8 percent for the sample.

V. ABNORMAL POSITIVE TONE IN STRATEGIC SETTINGS

The evidence above that abnormal positive tone is higher in firms with negative future fundamentals raises the question of whether managers exploit tone opportunistically to misinform investors about the negative future fundamentals instead of revealing useful private information. Therefore, we investigate next whether abnormal positive tone is associated with the presence of strong incentives to influence investor perceptions. Because incentives are not directly observable, we use events that the past literature has documented as being associated with the presence of incentives to either hype or depress the firm's image. Events associated with incentives to bias perceptions upward include just meeting or beating earnings benchmarks (*JMBE*), future earnings restatements because earnings were previously manipulated, and major corporate transactions, such as mergers and acquisitions (*M&A*) and seasoned equity offerings (*SEO*). For an event associated with incentives to bias perceptions downward, we consider stock option grants. The purpose of these tests is not to show that tone management causes these strategic events, but rather to demonstrate whether firms facing incentives to manipulate perceptions resort to opportunistic tone management.¹⁷



¹⁵ As a robustness check, we also include R&D in the regression because Table 3 shows that *ABTONE* is correlated with R&D. The results are qualitatively similar in sign, magnitude, and statistical significance of the estimated coefficients.

¹⁶ These results differ from the evidence that tone optimism predicts positive future earnings in Davis et al. (2012) 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. Our larger sample size contains almost twice as many distinct firms. We read every report headline to ensure that each observation in our sample is an announcement about earnings, not other events. 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 because we are interested in studying the relation between tone management and managerial strategic incentives. However, we do remove earnings announcements with other concurrent news announcements. Finally, instead of *TONE* or $\Delta TONE$, we focus on *ABTONE* because Table 3 results indicate that *TONE* and $\Delta TONE$ contain useful information about firm fundamentals and so are less suitable proxies for discretionary tone. We offer additional results about normal tone, *NTONE*, the tone component that is related to fundamentals in the "Inclusion of Normal Tone in Test Regressions" section. Table 11 reports that *NTONE* has a positive relation with future performance.

¹⁷ Our conversations with investor relations (IR) professionals and analysts indicate that the IR staff prepares the initial draft of the earnings press release using information supplied by the finance department, key messaging notes from the CEO and CFO, and guidance from the legal compliance team. When there are major messaging issues, either an internal or external marketing/PR team is consulted to refine the message. The draft is then sent up the management chain. After consultation with the IR director and the CFO, the CEO approves the draft before the release. Therefore, the tone of the press release very probably reflects the CEO's position. This is analogous to past studies relating accruals management with CEO incentives, which generally assume that CEOs influence the reported numbers without being the direct party "doing the accounting."

Abnormal Positive Tone and Contemporaneous Just Meet or Beat Earnings Events

We consider settings in which managers may have manipulated earnings to just meet or beat prior year's earnings or the analysts' consensus forecasts (e.g., Burgstahler and Dichev 1997; Degeorge, Patel, and Zeckhauser 1999). In a related paper, Frankel et al. (2010) do not find that the tone of conference calls is more negative for firms that just miss the analyst forecast by a penny than firms that just meet or beat the analyst forecast by a penny. Some sections of conference calls are spontaneous conversations, and so may be less likely to be strategically manipulated than the tone in earnings press releases that could be strategically designed.

We run the following logistic regression to examine whether abnormal positive tone is associated with a higher likelihood of just meeting or beating earnings (*JMBE*) benchmarks.¹⁸

$$JMBE_{jt} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt}.$$
(6)

The dependent variable, *JMBE*, is either an indicator variable, *JMBE_change* or *JMBE_analyst*, defined as follows. *JMBE_change* is set to 1 if the 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 0 otherwise. *JMBE_analyst* is set to 1 if a firm's consensus analyst forecast error is nonnegative, but smaller than 0.01 (one cent), and is 0 otherwise. The control variables are defined previously in Section III.

Table 5 presents estimation results in Panel A for the prior year's earnings threshold and in Panel B for the analysts' forecast threshold. In both panels, *ABTONE* is associated with significantly higher likelihood of *JMBE*, suggesting that tone management complements beating or meeting earnings benchmarks to affect investor perception. The magnitudes of the economic effects are significant. A one standard deviation increase in *ABTONE* increases the odds of reporting a very small earnings by 9.2 percent and the odds of just beating or meeting analyst forecasts by 7.3 percent. Consistent with prior studies, we also find that bigger firms, growth firms, and those with recent poor stock returns are more likely to just meet or beat thresholds.

Abnormal Positive Tone and Future Earnings Restatements

Next, we test whether tone management predicts future earnings restatements incrementally to accruals management. It is well accepted that discretionary accruals are poor proxies of earnings management, and the literature continues to debate whether firms manage accruals to just meet/beat thresholds and during corporate transactions. Earnings restatements (irregularities), however, are clear indicators of prior earnings manipulation using accruals. Therefore, the restatement sample is especially pertinent to test whether tone management is used when firms have incentives to manage perceptions. We run the following logistic regression:

$$RESTATE_{j,t+n} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(7)

where n = (1, 2, or 3).

The restatement data are from the GAO database from 1997 to 2006.¹⁹ Pennes, Leone, and Miller (2008) classify restatements into innocuous accounting errors versus irregularities that likely

¹⁹ Our sample of observations in Table 6 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.



¹⁸ A reverse regression where *ABTONE* is the dependent variable and the incentive variable is the main independent variable yields similar inferences as the regressions in Equations (6) through (10). A regression on *ABTONE* when all incentive variables are added jointly as independent variables shows significance for all incentive variables except those for option grants.

Panel A: Earnings Target 1—Scaled Earnings ChangesMartovicSIZEBTMRETSTD_AETSTD_AETNo. Obs.Pseudo RDep. Var. α d <td< th=""><th>Panel A: Earnings TargeDep. Var.JMBE_change-1.7958****Dep. value</th><th>1</th><th></th><th></th><th></th><th></th><th>)</th><th></th><th></th><th></th><th></th></td<>	Panel A: Earnings TargeDep. Var.JMBE_change-1.7958****Dep. value	1)				
Dep. Var. \mathbf{x} ABTONE DA EARNSIZEBTMRETSTD_RETSTD_RETNo. Obs.Pseudo R MBE_change -1.7958^{weat} 0.0010 0.0268 0.1413 0.0011 0.0006 0.0000 0.0300 0.0232 0.0063 $1.3,545$ 7.73% $pvalue$ 0.0010 0.0268 0.1413 0.0011 0.0006 0.0000 0.0300 0.0232 0.0063 $1.3,545$ 7.73% Panel B: $\mathbf{Earmings Target 2-Analysts' Forecast\mathbf{DA}\mathbf{EARN}\mathbf{SIZE}\mathbf{BTM}\mathbf{RET}\mathbf{STD_RET}\mathbf{N0}\mathbf{Obs.}\mathbf{Pseudo R}\mathbf{Dep. Var.}\mathbf{z}\mathbf{ABTONE}DA\mathbf{O0001}(0.0000)(0.0015)(0.0023)(0.0023)(0.0023)(0.0023)(0.003)(0.0023)(0.0033)(0.0234)(0.0023)(0.0234)(0.0023)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0234)(0.003)(0.0030)(0.0030)(0.00334)(0.0030)(0.00334)(0.0030)(0.00334)(0.0030)(0.0031)(0.0030)(0.0031)(0.0030)(0.0031)(0.0030)(0.0030)(0.0030)$	$\frac{\text{Dep. Var.}}{JMBE_change} \xrightarrow[(1.7958****)]{(0.0010)}$	t 1—Scaled	Earnings	Changes							
<i>MBE_change</i> -1.7958*** 12.9044** 0.6728 1.2302**** 0.10390** 0.4626*** -13.5332** -3.4214*** 13.545 773% p-value (0.0010) (0.0268) (0.1413) (0.0011) (0.0000) (0.0300) (0.0232) (0.0063) (0.0063) (0.0063) (0.0063) (0.0063) (0.0063) (0.0063) (0.0063) (0.0063) (0.0003) (0.0003) (0.0000) (0.0003) (0.0000) (0.0015) (0.0003) (0.0003) (0.00013) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0003) (0.0233) (0.1232) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1236) (0.0003) (0.0231) (0.0231) (0.0231) (0.0231) (0.0233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233) (0.1233)	JMBE_change -1.7958***	ABTONE	DA	EARN	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo R
Panel B: Earnings Target 2—Analysts' ForecastDeferenceSTD_ in the indicator is a structure in parently in the indicator variable is a indicator variable is a indicator variable is a indicator variable is a indicator variable in the indicator variable is a indicator variable in the indicator variable is a indicator variable is a indicator variable in the expension in Table 1:No. Obs.Pseudo R NOE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MBE_{μ} MO_{μ} <td>p-value</td> <td>12.9044** (0.0268)</td> <td>0.6728 (0.1413) (</td> <td>1.2302^{***} (0.0011)</td> <td>0.1039*** (0.0006)</td> <td>-0.7969*** (0.0000)</td> <td>-0.4626^{**} (0.0300)</td> <td>-13.3532^{**} (0.0232)</td> <td>-3.4214^{***} (0.0063)</td> <td>13,545</td> <td>7.73%</td>	p-value	12.9044** (0.0268)	0.6728 (0.1413) (1.2302^{***} (0.0011)	0.1039*** (0.0006)	-0.7969*** (0.0000)	-0.4626^{**} (0.0300)	-13.3532^{**} (0.0232)	-3.4214^{***} (0.0063)	13,545	7.73%
Dep. Var. α $ABTONE$ DA $EARN$ $SIZE$ BTM RT $STD_{-}RT$ $STD_{-}RT$ N N $ODs.$ Pseudo R $JMBE_{-}$ and/yr -3.9457^{***} 10.3595^{***} -0.0286 0.6097^{***} 0.0000 (0.0015) (0.0323) (0.1232) N N O N <t< td=""><td>Panel B: Earnings Targe</td><td>t 2—Analys</td><td>sts' Foreca</td><td>ast</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Panel B: Earnings Targe	t 2—Analys	sts' Foreca	ast							
$\begin{aligned} JMBE\ and/ysr\ -3.9457^{***}\ 10.3595^{***}\ -0.0286\ 0.6097^{***}\ 0.0990^{***}\ -0.1257^{**}\ -4.4505\ -0.2211\ 13,569\ 3.39\%\ p-value\ (0.0002)\ (0.0015)\ (0.0323)\ (0.1232)\ (0.2881)\ (0.2881)\ (0.2881)\ (0.2881)\ (0.2881)\ (0.2021)\ (0.0000)\ (0.0015)\ (0.0015)\ (0.0323)\ (0.1232)\ (0.2881)\ (0.2$	Dep. Var. a	ABTONE	DA	EARN	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo R
, ** Indicates $p < 0.05$ and $p < 0.01$, respectively. p-values are reported in parentheses. This table shows the logistic regression results of just meeting or beating performance thresholds on <i>ABTONE</i> and control variables. In Panel A, the dependent variable for indicator variable for whether current earnings just meet or beat the prior earnings benchmark, <i>JMBE_change</i> . In Panel B, the dependent variable is an indicator variable for whether current earnings just meet or beat the prior earnings benchmark, <i>JMBE_change</i> . In Panel B, the dependent variable is an indicator variable for whether current earnings just meet or beat the analysts' consensus forecast, <i>JMBE_analyst</i> . The key independent variable, <i>ABTONE</i> , is measured as the residual from the annua cross-sectional regression in Table 1: $TONE_{ji} = \alpha + \beta_{0.} EARN_{ji} + \beta_{1.} AFE_{ji} + \beta_{2.} STIE_{ji} + \beta_{3} BTM_{ji} + \beta_{4} STD_RET_{ji} + \beta_{5} STD_EARN_{ji} + \beta_{6} AGE_{ji} + \beta_{7} BUSSEG_{ji} + \beta_{9} LOSS_{ji} + \beta_{10} \Delta EARN_{ji} + \beta_{1.1} AFE_{ji} + \beta_{1.2} AF_{ji} + \varepsilon_{ji}$. Industry and year fixed effects are included in the regressions, but are not reported. Standard errors are based on two-way clustering at both the firm level and the year level. All other variables are as defined in Tables 1 and 2.	<i>JMBE</i> _analyst -3.9457*** p-value (0.0002)	10.3595^{***} (0.0031)	-0.0286 (0.8645)	0.6097*** (0.0021)	0.0990*** (0.0000)	-0.3153^{***} (0.0015)	-0.1257^{**} (0.0323)	-4.4505 (0.1232)	-0.2211 (0.2881)	13,569	3.39%
$TONE_{j_{i}} = \alpha + \beta_{0} EARN_{j_{i}} + \beta_{1} RET_{j_{i}} + \beta_{2} SIZE_{j_{i}} + \beta_{3} BTM_{j_{i}} + \beta_{4} STD.RET_{j_{i}} + \beta_{5} STD.EARN_{j_{i}} + \beta_{0} AGE_{j_{i}} + \beta_{1} BUSSEG_{j_{i}} + \beta_{9} LOSSG_{i} + \beta_{10} \Delta EARN_{j_{i}} + \beta_{11} AFE_{j_{i}} + \beta_{11} AFE_{j_{i}} + \beta_{12} AF_{j_{i}} + \varepsilon_{j_{i}}.$ Industry and year fixed effects are included in the regressions, but are not reported. Standard errors are based on two-way clustering at both the firm level and the year level. All other variables are as defined in Tables 1 and 2.	**, *** Indicates $p < 0.05$ and p -values are reported in parentht This table shows the logistic regindicator variable for whether cu whether current earnings just me cross-sectional regression in Tab	p < 0.01, resp esses. gression results urrent earnings ect or beat the <i>a</i> ole 1:	ectively. of just meet just meet or nalysts' cons	ting or beating r beat the prior sensus forecast	performance t r earnings benc , <i>JMBE_analys</i>	hresholds on AE thmark, $JMBE_{-c}$	3 <i>TONE</i> and con <i>change</i> . In Pant pendent variable	ntrol variables. el B, the deper e, <i>ABTONE</i> , is	In Panel A, the ndent variable i measured as th	e dependent v s an indicato e residual fro	variable is an r variable fo on the annua
Industry and year fixed effects are included in the regressions, but are not reported. Standard errors are based on two-way clustering at both the firm level and the year level. All other variables are as defined in Tables 1 and 2.	$TONE_{ji} = \alpha + \beta_0 EARN_{ji} + \beta_{11}AFE_{ji} + \beta_1$	$\beta_1 RET_{jt} + \beta_2 S$ $_{(2}AF_{jt} + \varepsilon_{jt}.$	$TZE_{jt} + eta_3 BT$	$TM_{ji} + \beta_4 STD_{-}$	$RET_{jt}+eta_5STD$	$EARN_{jt} + \beta_6AC$	$\partial E_{jt} + eta_7 BUSS_1$	$EG_{ji}+eta_8 GEO$	$SEG_{ji} + \beta_9 LOS_{ij}$	$\delta_{ji}+eta_{10}\Delta EA$	RN_{jt}
	Industry and year fixed effects a All other variables are as define	rre included in d in Tables 1 a	the regression and 2.	ons, but are not	t reported. Stan	dard errors are	based on two-w	vay clustering	at both the firm	level and the	e year level.

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stem from an earlier earnings manipulation. Therefore, for a cleaner test for the association with earnings manipulation, we focus 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, labeled $RESTATE_{t+1}$, $RESTATE_{t+2}$, and $RESTATE_{t+3}$, respectively. After matching restatement data with our original dataset, we have samples of 182, 342, and 460 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 (7) in Table 6. The coefficients on *ABTONE* are positive in all three horizon regressions, and statistically significant at conventional levels for the twoyear and the three-year horizon regressions.²⁰ To measure the economic effect of *ABTONE* on future earnings restatement, we calculate the marginal effect of the probability of restating earnings when abnormal positive 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 11.3 percent and in three years by 9.8 percent. With regard to the control variables, we find that larger firms and value firms are more likely to restate earnings. Bigger firms are more likely to attract scrutiny from regulators (Lee, Li, and Yue 2006). In sum, our results show that firms with higher abnormal positive tone are more likely to restate earnings due to reporting irregularities in the two to three years after the earnings press release.

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*). Prior studies have documented that these transactions create 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:

$$SEO_{t+1} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(8)

$$M\&A_{t+1} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(9)

where:

- SEO_{t+1} = a dummy variable that is set to 1 when the Sale of Common and Preferred Stock (SSTK) in one year after an earnings press release is greater than 10 percent of lagged total assets, and is 0 otherwise; and
- $M\&A_{t+1} = 1$ if the amount of acquisition (AQC) in one year after an earnings press release is greater than 10 percent of lagged total assets, and is 0 otherwise.

When the Compustat items are missing, we set them to 0. There are 1,476 SEO_{t+1} observations and 1,547 $M\&A_{t+1}$ observations that are equal to 1.

Panel A of Table 7 presents the results for SEO. The ABTONE coefficient is positive and significant. The effect of ABTONE is also economically significant with a one standard deviation increase in ABTONE increasing the probability of an SEO by 9 percent. These results are consistent with the hypothesis that managers deploy tone management when announcing earnings prior to a

²⁰ The weaker one-year results suggest that restatements take time to manifest from when perceptions are first managed upward. The sample contains only 186 irregularities in the one-year horizon compared with 460 restatements in the three-year horizon.



					TABL	,Е б					
			Abnorma	I Positive	Tone and F	uture Earni	ings Restat	ements			
Dep. Var.	ø	ABTONE	DA	EARN	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo R ²
$RESTATE_{t+1}$	-5.3597**	5.7576	-0.0462	-0.0373	0.2075***	0.2977***	-0.0635	17.4791	-0.9209	8,482	5.42%
p-value	(00000)	(0.2890)	(0.8956)	(0.9369)	(0.000)	(0.0022)	(0.3945)	(0.1351)	(0.2511)		
$RESTATE_{t+2}$	-4.6959^{***}	15.7989^{**}	0.3392	-0.0094	0.1864^{***}	0.2488^{***}	-0.0216	9.2212	-0.5615	8,784	4.77%
p-value	(0.000)	(0.0383)	(0.5067)	(0.9811)	(0.000)	(0.0002)	(0.7696)	(0.3706)	(0.5020)		
$RESTATE_{t+3}$	-4.2802^{***}	13.7990^{*}	0.1498	-0.2493	0.1614^{***}	0.1854^{***}	-0.0841	3.0131	-0.2886	8,901	5.05%
p-value	(0.0000)	(0.0763)	(0.6806)	(0.4231)	(0.000)	(0.0070)	(0.2491)	(0.7514)	(0.6943)		
F - I ዮዮዮ ዮዮ ዮ	010		10.0								
p-values are ren	cates $p < 0.10$, orted in parenth	p < u.u., and leses.	p < u.uı, rest	ecuvery.							
This table show	s the logistic reg	gression results	of future earn:	ings restatem	ents on ABTON	VE and other co	introl variables	. The depender	nt variables are th	ne restatemer	ts in the next

one to three years after earnings announcements. Our sample stops at year 2004 because we examine the future restatements up to three years head. For simplicity, industry and year dummies are included in the regression, but not reported in the table. *ABTONE* is abnormal positive tone, measured as the residual from the annual cross-sectional restrictional to the table. *ABTONE* is abnormal positive tone, measured as the residual from the annual cross-sectional restrictional restriction. regression Table 1:

 $TONE_{ji} = \alpha + \beta_0 EARN_{ji} + \beta_1 RET_{ji} + \beta_2 SIZE_{ji} + \beta_3 BTM_{ji} + \beta_4 STD_RET_{ji} + \beta_5 STD_EARN_{ji} + \beta_6 AGE_{ji} + \beta_7 BUSSEG_{ji} + \beta_8 GEOSEG_{ji} + \beta_9 LOSS_{ji} + \beta_{10} \Delta EARN_{ji}$ $+\beta_{11}AFE_{jt}+\beta_{12}AF_{jt}+\varepsilon_{jt}.$

Standard errors are based on two-way clustering at both the firm level and the year level. All other variables are as defined in Tables 1 and 2.



						IAI	BLE 7						
				Abnor	rmal Posi	tive Tone	and Coi	rporate	Transactic	sue			
Panel A:	Abnorma	l Positive	Tone and	I SEO _{t+1}									
Dep. Var.	ø	ABTG	NE D	M N	EARN	SIZE	B_{i}	ΓM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo R ²
SEO_{t+1} p-value	$-1.2456^{*:}$ (0.0007)	** 12.74	$28^{*} 1.14^{-} (0.00)$	65*** -2 20) (0	2816*** 0000)	-0.2030^{**} (0.0000)	* -1.75 (0.00	589*** (00)	0.4831***	5.8325** (0.0208)	1.9857 *** (0.0000)	13,178	24.40%
Panel B:	Abnorma	l Positive	Tone and	l $M\&A_{t+1}$									
Dep. Var.	ĸ	NOTAK	E DA	E_{ℓ}	4RN	SIZE	BTM		RET	STD_RET	STD_EARN	No. Obs.	Pseudo \mathbb{R}^2
$M\&A_{r+1}$ p-value	-0.5925 (0.1164)	13.5208* (0.0206)	** -1.093 (0.006	3*** 2.99 1) (0.00) (000	0.0555***	-0.3501(0.0000	(0.(1335*** 0000)	-18.6079*** (0.0000)	0.1697 (0.7679)	13,546	7.48%
Panel C:	Abnorma	l Positive	Tone and	I SEO _{t+1}	121 Days								
Dep. Var.		ø	ABTONE	DA DA	EARN	SIZ	Ε	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo \mathbb{R}^2
$SEO_{t+1_{-}}I2$. p-value	l days -1.	4.0381*** 0.0000)	25.2717* (0.0120)	0.1700	-0.9147^{*} (0.0054)	*** -0.180 (0.000)3*** – (6)	1.1692^{**} 0.0150)	0.4755**	* -15.5857 (0.1029)	-0.5106 (0.5461)	12,177	11.70%
Panel D:	Abnorma	l Positive	Tone and										
Dep. Var.		ø	ABTONE	DA	EAR	V SIZH	E	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo \mathbb{R}^2
$M\&A_{r+1}I$ p-value	$\frac{11 \text{ days}}{0}$.0529*** .0007)	9.6628** (0.0212)	-1.0175** 0.0038)	** 2.5670 [*] (0.0002)	*** 0.0500 (0.0060)*** -0.	.2481** .0197)	0.1563*** (0.0038)	$-14.3050^{**:}$ (0.0022)	* 0.3062 (0.7013)	13,411	5.65%
*, **, *** In p-values are This table pr M&A activit announcemen	idicates p < reported in esents logisti ies, respectiv its. ABTON	(0.10, p < parentheses ic regression vely, within E is measured.	0.05, and p results of stu one year afi ed as the res	<pre>< 0.01, resp ock issuance ter the earnin idual from th</pre>	ectively. activities or ngs announc he annual cr	1 abnormal po cement, where oss-sectional	sitive tone eas those j regression	e. The depe in Panels (1 in Table	andent indica C and D are 1:	tor variables in for events occu	Panels A and B arring within 121	ure for equity trading day	issuance and s of earnings
$TONE_{j_i}$	$\beta = \alpha + \beta_0 E_i + \beta_{11} A F$	$\frac{4RN_{jt}+\beta_1 H}{E_{jt}+\beta_{12}AF}$	$RET_{jt}+eta_2SI$ $\sum_{jt}^{7}+arepsilon_{jt}$.	$ZE_{jt}+eta_{3}BT$	$M_{jt} + eta_4 STL$	$\Delta RET_{ji} + eta_5 ST_{ji}$	TD EARN	$\beta_{jt} + \beta_6 A G B_{jt}$	$z_{jt} + \beta_7 BUSS$	$REG_{jt} + eta_8 GEO$	$SEG_{ji} + \beta_9 LOS_{ij}$	$\delta_{ji}+eta_{10}\Delta EA$	RN_{ji}
Industry and All other vai	year fixed e iables are as	effects are i	ncluded in th Tables 1 and	te regression d 2.	s, but are no	ot reported. St	tandard er	rors are ba	tsed on two-	way clustering	at both firm leve	el and year le	svel.

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stock issuance to incite greater excitement about the firm so as to obtain a better price for the newly issued shares. We also find that the coefficient on discretionary accruals, *DA*, in Panel A is positive and significant, consistent with Teoh et al.'s (1998) finding of accruals management prior to an equity issuance. Small firms and 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 firms with higher stock return or earnings volatilities are also more likely to issue stock in the subsequent year.

Panel B of Table 7 presents the estimation results of Regression (9) when the dependent variable is $M\&A_{t+1}$. The results are similar to those for SEOs because *ABTONE* is significantly 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 10 percent. The results suggest that tone management often accompanies acquisition activities. In sum, the *SEO* and M&A test results are both consistent with the hypothesis that managers strategically use disclosure tones to influence investors' perception positively prior to major corporate transactions.

Abnormal Positive Tone and Stock Option Grants

This subsection examines stock option grants, a setting in which executives have incentive to manipulate perceptions downward. Prior studies show that firms strategically disclose bad news prior to stock option grants to reduce the stock price to ensure a lower option strike price at the grant date (Aboody and Kasznik 2000; Baker, Collins, and Reitenga 2003; McAnally, Srivastava, and Weaver 2008). We test whether abnormal positive tone is negatively related to stock option grants by estimating the following logistic regression:

$$GRANT_{t+i} = \alpha + \beta_0 ABTONE_{jt} + \beta_1 DA_{jt} + \beta_2 EARN_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(10)

for i = 0, 1.

GRANT is set to 1 when the reported Black-Scholes fair value of stock options granted to the CEO that year is higher than the median of the year in the sample. We select larger grants because the incentives to bias perceptions downward are expected to be stronger for large grants than for small continuous grants. Because grants are not awarded by every firm or in every year, we set missing values to 0.

There are 2,008 firm-year observations with contemporaneous-period large grants, and 1,460 large grants in the following year. Aboody and Kaznik (2000) report that 40 percent 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 *ABTONE* and *GRANT*_t are in Panel A of Table 8 and for the one-year-ahead $GRANT_{t+1}$ in Panel B. The coefficient on *ABTONE* is negative and significant in both panels and the effects are economically significant. A one standard deviation increase in *ABTONE* increases the likelihood of option grants in the contemporaneous (next) year of 9.1 percent (8.2 percent). These results are consistent with the hypothesis that managers strategically bias perceptions downward using tone in the earnings press release prior to an option grant. We also find that the coefficient on discretionary accruals is negative and significant in Panel B, consistent with Baker et al. (2003).

VI. IMMEDIATE AND DELAYED MARKET REACTIONS TO ABNORMAL POSITIVE TONE

Thus far, we have established that managers manipulate tone incrementally to manipulating accruals when facing various strategic incentives. The ultimate goal of such strategic actions is to



					TABLE	8					
			Ab	normal Pos	itive Tone a	ind Option	n Grants				
Panel A:	Abnormal Po	sitive Tone and	d Contempo	oraneous O _l	ption Grant						
Dep. Var.	ø	ABTONE	DA	EARN	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo \mathbb{R}^2
$GRANT_{t}$	-23.6171^{***}	-12.7638^{***}	-0.5838	1.4071***	0.7170^{***}	0.1413	-0.0648	0.6060	0.1095	12,623	24.10%
p-value	(0.0000)	(0.0043)	(0.1673)	(00000)	(0.0000)	(0.1068)	(0.2124)	(0.8724)	(0.7976)		
Panel B:	Abnormal Pos	sitive Tone and	l Future O	otion Grant							
Dep. Var.	ø	ABTONE	DA	EARN	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Pseudo R ²
$GRANT_{t+1}$	-22.4082***	-11.6028***	-1.8387***	1.7984***	0.7339***	0.0988	-0.0141	0.5593	-0.0382	8,435	25.70%
p-value	(00000)	(0,0040)	(0000.0)	(000000)	(0000.0)	(((24.0)	(6661.0)	(0.0422)	(117411)		
*, **, *** L p-values are	ndicates $p < 0.10$ reported in parent	, $p < 0.05$, and p theses.	< 0.01, respec	tively.							
Standard err A and in the in Table 1:	ors are based on tv following year aft	vo-way clustering and the earnings and	at both firm lev nouncement in	el and year leve Panel B on abn	el. This table pro ormal positive t	esents logisti one. ABTON	c regression r /E is measure	esults of stock d as the residu	option grant ever al from the annua	at in the same l cross-sectio	year in Panel nal regression
$TONE_{j_i}$	$a_{t} = \alpha + \beta_{0} EARN_{jt} + \beta_{0.0} AFE_{jt} + \beta_{0.0} AFE_{jt} + \beta_{0.0} AFE_{jt}$	$+ \beta_1 RET_{jt} + \beta_2 SL \\ \beta_{12} AF_{it} + \varepsilon_{it}.$	$Z E_{jt} + eta_3 BTM_{jt}$	$_{t}+eta_{4}STD$ _RET	$\beta_{it} + \beta_5 STD EAD$	$RN_{jt}+eta_{6}AG$	$E_{jt} + \beta_7 BUS_{1}$	$SEG_{jt} + \beta_8 GEG$	$OSEG_{ji} + \beta_9 LOS_{ij}$	$S_{ji}+eta_{10}\Delta EA$	RN_{ji}

 $+ p_{11}AFE_{jt} + p_{12}AF_{jt} + \varepsilon_{jt}.$

Industry and year fixed effects are included in the regressions, but are not reported. All other variables are as defined in Tables 1 and 2.

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influence stock valuations. Therefore, we next test whether investors can see through tone management. We examine the stock price reactions to *ABTONE* in the short window around earnings announcements, and in the longer horizon of one and two quarters after earnings announcements.

Market Reaction to ABTONE at the Time of Earnings Announcements

Section IV documents that *ABTONE* is negatively related to future earnings and cash flow from operations. If investors anticipate even partially strategic tone hyping, then they would discount for *ABTONE*, and so we would predict a negative return response to *ABTONE* at the earnings announcement. In contrast, if managers succeed in misleading investors by inciting over-optimism using tone manipulation, then we would expect a positive response at earnings announcements. We run the following regression:

g tone manipulation, then we would expect a positive response at earnings announcements. We the following regression:

$$CR[-1, +1] = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RDA_{jt} + \beta_2 RSUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt}$$

where $SUE_{jt} = \text{firm } j$'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 *DA* and *SUE* as provies for the quantitative news. To gauge economic significance more easily, we use annual decile ranks for the key independent variables, *RDA*, *RSUE*, and *RABTONE* (Bernard and Thomas 1990). The decile rankings (1 to 10) are reduced by 1 and then divided by 9 so as to range between 0 and 1. Thus, the slope of coefficients can be viewed as abnormal returns to zeroinvestment portfolios.

We present the estimation results of Regression (11) in Panel A of Table 9. Consistent with the literature on earnings response coefficients, we find that the contemporaneous return response to earnings news (*RSUE*) is significantly positive (t = 10.01). Stock returns are higher for small, value, and less volatile returns firms. The response to abnormal accruals is significantly negative. For our key test variable, *RABTONE*, the coefficient of 59 basis points is significantly positive (t = 2.19), and economically meaningful.

Thus, investors do not appear to discount for the negative information about future performance contained in *ABTONE*. This raises the possibility that the higher stock prices associated with tone management reflect over-valuation at the time of earnings announcements that will subsequently be reversed. We test this possibility in the next subsection.

Delayed Market Reaction after Earnings Announcements

Next, we formally test whether investors are misled by abnormal positive tone at the time of earnings announcements. If this is the case, then 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 regressions:

$$CR[+2, +61] = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RDA_{jt} + \beta_2 RSUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{jt},$$
(12)

$$CR[+2, +121] = \alpha + \beta_0 RABTONE_{jt} + \beta_1 RDA_{jt} + \beta_2 RSUE_{jt} + \beta_3 SIZE_{jt} + \beta_4 BTM_{jt} + \beta_5 RET_{jt} + \beta_6 STD_RET_{jt} + \beta_7 STD_EARN_{jt} + \varepsilon_{it}.$$
(13)

The dependent variable is the cumulative returns one quarter and two quarters after the earnings announcements for Regression (12) in Panel B and Regression (13) in Panel C of Table 9,



		F	month of the M	T but of the	TABLE	ر 9 ۱۰:۰۰۰ میں ۲۰ ۸۱۰		Curo Touris			
Panel A: Im	mediate S	Stock Return	Market Imn 1 Reactions	iediate and 1 during the E	Jelayed Kead Jarnings Ann	cuons to AD nouncements	normal ros s	auve tone			
Dep. Var.	ر ع	RABTONE	RDA	RSUE	SIZE	BTM	RET	STD_RET	STD_EARN	No. Obs.	Adj. R ²
<i>CR</i> (-1, +1) t-stat	0.0303 (1.59)	0.0059** (2.19) (0.0084*** 	0.03005*** (10.01)	-0.0010 ** (-2.53)	0.0094*** (3.84)	0.0165*** (5.26)	-0.3426^{***} (-3.37)	-0.0190 (-1.36)	13,060	3.76%
Panel B: Del	layed On	e Quarter R	eturn React	ions after E ²	trnings Anno	ouncements					
Dep. Var.	ø	KABTON	E RDA	RSUE	SIZE	BTM	RET	STD_ RET	STD_EARN	No. Obs.	Adj. R ²
<i>CR</i> (+2, +61) t-stat	-0.026 (-0.36)	2 <u>-0.0212*</u> (+2.63)	:**	5*** 0.0025 (0.27)	-0.0061^{*} (-1.91)	0.0487*** (4.98)	0.0476*** (3.46)	-1.1566 (-0.98)	-0.1088 (-1.67)	13,062	6.51%
Panel C: Del	layed Two	o Quarter R	teturn React	tions after E	arnings Anne	ouncements					
Dep. Var.	ø	RABTO	NE RDA	RSUE	SIZE	BTM	RET	STD_ RET	STD_EARN	No. Obs.	Adj. R ²
<i>CR</i> (+2, +121 t-stat) -0.12 (-0.87	(-2.79)	+***0.04	11* 0.0068) (0.64)	-0.0183^{**} (-2.02)	0.0506*** (2.68)	0.0485** (2.13)	-0.0295 (-0.01)	-0.1904 (-1.51)	12,978	9.27%
*, **, *** Indic t-statistics based This table preset <i>DA</i> , and <i>SUE</i> , re dependent variat +121) is the 121 regression in Tal	ates $p < 0$. l on two-wa nts regressio sepectively. ble <i>CR</i> (+2, - trading-day ble 1:	10, $p < 0.05$ a y clustering at 1 in results of the In Panel A, the +61) is the 60-th /s cumulative st	nd $p < 0.01$, r. 001 the firm le market immedi dependent vari rading-days cun ock returns start	sepectively. vel and the year are and delayed 1 able CR (-1,+1) nulative stock ret ing the second d	level are report eactions to abno is the three-trad urns starting the ay after earnings	ed in parenthes, rmal positive to ing-days cumul second day afte s announcement	es. one. <i>RABTONE</i> lative returns su er earnings ann is. <i>ABTONE</i> is	<i>t</i> , <i>RDA</i> , and <i>RSU</i> urrounding the e ouncements. In measured as the measured as the	<i>JE</i> are annual decarrings announc Panel C, the dep residual from th	cile ranks for ements. In Pa endent variab e annual cross	ABTONE, nel B, the le CR ($+2$, :-sectional
$TONE_{ji} =$ Industry and yea	$\alpha + \beta_0 EAR^{\dagger} + \beta_{11} AFE_{jt}$ ar fixed effe	$V_{ji} + \beta_1 RET_{ji} + \beta_{12} AF_{ji} + \beta_{12} AF_{ji} + \beta_{ji} \cdot \epsilon_{ji}$	$\beta_2 SIZE_{jt} + \beta_3 b$ in the regression	$TM_{ji} + \beta_4 STD_{-k}$ ons, but are not	$RT_{ji} + \beta_5 STD_{-k}$ reported.	$\mathcal{Z}ARN_{jt}+eta_{6}AG,$	$E_{ji} + eta_{7} BUSSE$	$G_{ji} + \beta_8 GEOSI$	$\xi G_{ji} + eta_9 LOSS_{ji}$.	$+ \beta_{10} \Delta EARN$	ji
All other variab	les are as de	efined in Tables	1 and 2.		-						

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respectively. In both panels, *RSUE* coefficients are positive but insignificant and *RDA* coefficients are negative and significant. The general signs for the coefficients on these variables are consistent with previous literature, and the varying statistical significance is also consistent with weak postearnings-announcement drift (PEAD) and discretionary accruals anomalies in more recent periods. 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, Table 9 shows that *RABTONE* significantly predicts negative stock returns both one quarter ahead (Panel B, t = -2.63) and two quarters ahead (Panel C, t = -2.79).^{21,22} The magnitudes of the coefficients are also economically significant, and comparable in magnitude with the strength of the discretionary accruals and PEAD anomalies. The abnormal returns from tone management are 2.12 percent for one quarter (8.48 percent annualized) and 3.84 percent for two quarters (7.68 percent annualized). The evidence is consistent with the hypothesis that abnormal positive tone misleads investors at the time of earnings announcements to temporarily over-value the firm and the market subsequently corrects the mispricing.

VII. ADDITIONAL ANALYSIS

We first offer several robustness checks on all of the previous results. Then, we examine how tone management and accruals management may be related.

Alternative Dictionary Lists

We examine robustness with respect to using two alternative dictionary lists to classify words with optimistic or pessimistic tone, Henry (2008) and plarvard's GI modified by removing accounting terms from the positive and negative word list. Columns (1) and (2) of Table 10 show that the majority of the results are generally robust. Note that an insignificant relation between *ABTONE* and future performance is inconsistent with the hypothesis that discretionary tone informs, but is still consistent with the hypothesis that discretionary tone misinforms investors. For the Henry list, the coefficients have the expected signs in all regressions, and are statistically significant in some regressions, but not others. For the modified GI list, *ABTONE* significantly negatively predicts future earnings and cash flows. The coefficients in the other regressions again have expected signs, and some are statistically significant and some are not. In sum, the inference that abnormal tone misinforms is robust to using alternative word lists.²³

Alternative Tone Models

In our main tone model (1), we include current returns (*RET*), the book-to-market ratio (*BTM*), and analysts' forecasts of one-year-ahead earnings to capture concurrent quantitative information about expected future performance in the earnings press release. As a robustness check, columns (3) and (4) of Table 10 report results using abnormal positive tone estimated

²³ Since neither the LM nor Henry list is perfect, we conduct the full set of analyses also using a combined LM and Henry list. All inferences are robust (untabulated).



²¹ RABTONE does not significantly predict abnormal returns that are three- and four-quarters ahead. The shorter predictability period for future abnormal returns than for future accounting performance is consistent with evidence in the literature that stock returns anticipate fundamentals (Beaver, Lambert, and Morse 1980).

²² Demers and Vega (2011) report a positive relation between $\Delta TONE$ and the 60-trading day post-announcementperiod abnormal returns. In untabulated tests, we find that $\Delta TONE$ is negatively related to future restatements, positively related to *SEO*, and incrementally unrelated to accounting performance, stock returns, *JMBE*, *M&A*, and option grants. However, analogous to why, in studies of accruals, $\Delta ACCRUALS$ is a poor measure of discretionary accruals, $\Delta TONE$, being confounded with firm fundamentals (correlations reported in Table 3), is less suitable than *ABTONE* as a proxy for tone management.

TABLE 10

Tests	Expected Sign	(1) Henry	(2) Modified GI	(3) Include Management Forecast	Include Management Forecast Dummy
Future Performance		T			
$EARN_{t+1}$	0/—	0.0436	-0.1943 ***	-0.1153	-0.3070**
$EARN_{t+2}$	0/—	0.1492	-0.2217***	-0.1237	-0.3948*
$EARN_{t+3}$	0/-	0.1347	-0.3638 ***	0.0316	-0.6015*
CFO_{t+1}	0/—	-0.0028	-0.2377 ***	-0.0885	-0.3698 ***
CFO_{t+2}	0/—	0.0552	-0.3161***	-0.4322*	-0.6214***
CFO_{t+3}	0/—	0.1173	-0.2312^{**}	-0.0627	-0.5747*
JMBE			11		
JMBE change	+	8.9547***	4.1989	16.4002	13.1827**
JMBE analyst	+	14.2192***	6.2672***	16.4215**	10.1705***
Restatement		\sim	\times		
$RESTATE_{t+2}$	+	14.5136*	4.8147	28.3767	14.9071**
$RESTATE_{t+3}$	+	11.9562*	2.9318	19.8684	13.2451*
Financial Transactio	ons	\sim	X		
SEO_{t+1}	+	5.8115*	3.0563	16.4343	12.6447*
$M\&A_{t+1}$	+	6.7901**	4.6273*	30.3183***	13.4740**
Option Grants		\sim	\sim		
$GRANT_{t}$	_	-8.5586***	-4.3391*	-6.5185	-13.0589***
$GRANT_{t+1}$	_	-4.9362	-1.7691	-15.2248*	-12.0947***
Returns		\sim	\times		
CR(-1, +1)	+	0.0045**	0.0021	0.002	0.0059**
CR (+2, +61)	_	-0.0084	-0.0085	-0.0031**	-0.0227***
CR (+2, +121)	_	-0.0301*	-0.0122	-0.0323	-0.0404***

*, **, *** Indicates p < 0.10, p < 0.05, and p < 0.01, respectively.

t-statistics are based on two-way clustering at both the firm level and the year level.

This table presents a summary of regression results using alternative word lists and alternative tone models. All controls, industry, and year fixed effects are included in the regressions, but are not reported.

All other variables are as defined in Tables 1 and 2.

from a tone model that also further includes managerial forecasts of one-year-ahead earnings as a direct proxy of managerial expectations of future performance. Managerial forecasts are from the First Call CIG dataset, and their inclusion drastically reduces the sample size by about 75 percent. We use either the point forecast or the midpoint if the manager issues a range forecast, or else an indicator variable for whether the manager issued a forecast. As before, all coefficients are in the expected direction. Only some test regression coefficients are statistically significant when managerial forecast values are included in the tone model, whereas all test regression coefficients are statistically significant when the managerial forecast indicator variable is used instead in the tone model. Therefore, the general inference that abnormal positive tone misinforms remain robust to alternative tone models.



CR(-1, +1)*CR* (+2, +61)

CR (+2, +121)

Regre	ssion Results Summary of	Including Normal Tone	
Tests	Expected Sign of ABTONE	ABTONE	NTONE
Future Performance			
$EARN_{t+1}$	0/—	-0.0021**	0.0064*
$EARN_{t+2}$	0/—	-0.0031**	0.0008
$EARN_{t+3}$	0/—	-0.0046**	0.0007
CFO_{t+1}	0/—	-0.0026^{***}	0.0090**
CFO_{t+2}	0/—	-0.0047***	0.0056
CFO_{t+3}	0/—	-0.0044 **	0.0063
JMBE			
JMBE change	+	0.0866**	0.3610***
JMBE_analyst	+	0.0730***	0.1534***
Restatement		X	
$RESTATE_{t+2}$	+	0.1046*	-0.1082
$RESTATE_{t+3}$	+	0.0915	-0.0746
Financial Transactions			
SEO_{t+1}	+	0.0792*	0.2412***
$M\&A_{t+1}$	+	0.0846**	0.1321**
Option Grants			
$GRANT_t$	_	-0.0822^{***}	-0.0246
$GRANT_{t+1}$	_	-0.0738***	-0.0117
Returns			

0.0065**

-0.0223***

-0.0354 ***

TABLE 11

*, **, *** Indicates p < 0.10, p < 0.05, and p < 0.01, respectively.

t-statistics are based on two-way clustering at both the firm level and the year level.

This table presents regression results when expected tone, NTONE, is included as an additional regressor to all regressions in Tables 4 through 9. Only coefficients for NTONE and ABTONE are reported for comparison. NTONE is the expected value and ABTONE is the residual from the annual cross-sectional regression in Table 1 of TONE on a set of determinants. All controls, industry, and year fixed effects are included in the regressions, but are not reported. All other variables are as defined in Tables 1 and 2.

Inclusion of Normal Tone in Test Regressions

We add normal tone, NTONE, to the earlier test regressions to examine whether normal tone and abnormal positive tone affect the dependent variables differently. Table 11 tabulates the coefficients of NTONE and ABTONE and indicates their statistical significance. The results show that ABTONE remains statistically significant in all test regressions, which is expected since NTONE and ABTONE are orthogonal by design. The NTONE coefficient is positively significantly related to future one-yearahead earnings and cash flows, consistent with normal tone informing about future fundamentals. Recall that NTONE is a linear combination of current reported quantitative items, and so these results suggest that earnings and cash flows are persistent, on average, in our sample. NTONE is also significant and positive in the JMBE, SEO, and M&A regressions but not for the option grant, future restatements. Incremental to other quantitative fundamentals included directly in the test regressions,



0.0030

0.0048

-0.0075

NTONE is unrelated to immediate announcement returns and future returns, suggesting that investors price *NTONE* and *ABTONE* differently.²⁴

Seemingly Unrelated System Limited Dependent Regressions

The wide variety of strategic events that we examine is likely to be correlated in a given firm. For instance, firms likely to grant an above-average number of stock options to CEOs are also more likely growth firms and to issue new equity. Therefore, the regression residuals are likely to be correlated across the various regressions of strategic events that we consider. A SUR method that takes advantage of the correlation in residuals can improve estimation efficiency.²⁵ Therefore, as a robustness check, we run a SUR system of probit regressions to allow for both the cross-sectional and the time-series dependence of residuals for the following groups of event regressions: *SEO* and *M&A*, *M&A* and option grants, and *SEO* and option grants. The results using the SUR system of equations are all quantitatively and qualitatively similar to the results from individual probit regressions; thus, our results are robust to residual dependence across regressions.

Restricting SEOs to within 121 Trading Days of Earnings Announcements

The earlier results show that abnormal positive tone effects on future abnormal returns last about 121 trading days after the earnings announcement. If managers manipulate tone to facilitate strategic events, then we would expect managers to undertake these events within the 121-day time frame before the tone effects dissipate. We therefore refine our earlier tests and restrict *SEO* and *M&A* events to those occurring within 121 days of the earnings announcements as a robustness check. We obtain *SEO* and *M&A* transaction date data from Thompson's SDC database. Table 7, Panels C and D report that the *ABTONE* results are robust to this alternative specification.²⁶

A Pilot Analysis of the Joint Use of Tone Management and Earnings Management

Throughout the paper, we consider qualitative and quantitative management as two separate perception management tools, but they may be related either as complements or substitutes. In our sample, we find that the correlation between *DA* and *ABTONE* is a statistically significant 0.02,²⁷ suggesting that managers often use both tools simultaneously.

We regress the ratio *ABTONE/DA* on the set of 16 firm characteristics for cases when tone management and accruals management are in the same direction, and the results, untabulated for brevity, indicate that the ratio is correlated only with *AGE*. Thus, tone is more persuasive for investors in older firms with more established reputations.

Finally, we examine the correlation of *ABTONE/DA* with asset-scaled net operating assets at the beginning of the fiscal year (*NOA*), a proxy for the limits to accruals management (Barton and Simko 2002; Hirshleifer, Hou, Teoh, and Zhang 2004; Das et al. 2011). The Spearman correlation

²⁷ The small magnitude may be because *DA* and *ABTONE* have large measurement errors. Prior literature also finds that accruals management and expectation management have similar magnitudes of correlation (Das, Kim, and Patro 2011).



²⁴ To facilitate comparison, we standardize *NTONE* and *ABTONE* when including both variables in the regression. The results suggest that normal tone is priced appropriately, whereas abnormal tone is mispriced.

²⁵ We thank an anonymous referee for this suggestion. Since SAS does not support a SUR system of logistic regressions, we verify that the individual event probit regressions indeed provide similar results as the individual event logistic regressions.

²⁶ A similar concern exists for option grants. Unfortunately, we do not have data on dates of stock option award and so we are unable to check robustness for stock option award.

is significantly positive at 0.077, suggesting that when managers are constrained in manipulating accruals due to the balance sheet constraint, they are more likely to resort to tone management.

VIII. CONCLUSION

Earnings press releases are an important venue in which to study pricing effects of accounting information. Beyond disclosing the quantitative information, these press releases also contain qualitative text to help investors interpret the quantitative information and to market the firm to investors. 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 private information that cannot be incorporated into current quantitative results according to accounting GAAP requirements, or to misinform by masking poor future financial performance. The evidence is consistent with tone management misinforming investors.

We find that abnormal positive tone predicts negative future earnings and cash flows. We further find that abnormal positive tone is more positive when firms have strong incentives to bias investor perceptions upward. Abnormal positive tone is usually higher when firms just meet or beat past earnings or analysts' consensus forecasts, when earnings are upwardly biased to such an extent as to require a future restatement, and before a new equity issuance or a merger or acquisition activity. In contrast, when firms award stock options to CEOs, with an associated managerial incentive to reduce the share price, they prefer to manipulate abnormal tone downward.

Our evidence indicates that tone manipulation succeeds in misleading investors, and that this effect is incremental to the effect of accruals management. An abnormally positive tone incites an overly optimistic immediate stock price response to the earnings announcement and a subsequent return reversal. Finally, we document that firms that engage in tone management tend to be older firms rather than younger firms, and they tend to have more bloated balance sheets. Overall, our evidence indicates that abnormal positive tone contains negative information about future firm fundamentals, that firms tend to engage in tone management particularly when incentives to manipulate investor perceptions are high, and that investors are misinformed by tone management.

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