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Özgür Arslan-Ayaydin, Norman Bishara,
James Thewissen, Wouter Torsin

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Managerial career concerns and the content of corporate disclosures: An analysis of the tone of earnings press releases[☆]

Özgür Arslan-Ayaydin^a, Norman Bishara^b, James Thewissen^c, Wouter Torsin^{d,*}

^a Department of Finance, University of Illinois at Chicago, United States of America

^b Stephen M. Ross School of Business, University of Michigan, United States of America

^c Louvain Finance (LIDAM), Louvain School of Management, Université catholique de Louvain, Belgium

^d HEC Liège, Management School of the University of Liège, Belgium

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ABSTRACT

This study examines how the narrative content of corporate disclosures is affected by managers' career concerns, measured by the enforceability of noncompete provisions in employment contracts. We provide empirical evidence that career concerns lead managers to manipulate the content of corporate disclosures by inflating the tone of earnings press releases to convey a more optimistic picture about the firm's financial performance. We ensure the causality of our findings by exploiting changes to noncompete enforceability following court rulings. We also show that tone inflation is stronger when CEOs are younger, less capable and less experienced, as well as for managers of firms with more independent boards, more analysts following and better governance.

1. Introduction

Since the study of [Graham et al. \(2005\)](#), career concerns have attracted increasing interest in the literature. Standard principal-agent models traditionally assume that CEOs maximize shareholders' value because their own pay and incentives are set to align managerial interests with those of shareholders ([Core et al., 2003](#); [Jensen & Murphy, 1998](#); [Misangyi & Acharya, 2014](#)). However, these models usually ignore the fact that career concerns provide managers with distinct and important incentives that may lead them to deviate from the objective of stock price maximization (e.g., [Fama, 1980](#); [Holmström, 1983](#); [Holmström, 1999](#)). Managerial career concerns stem from the evaluations of labor markets and boards of directors, which, if considered subpar, may lead to their dismissal ([Hermalin & Weisbach, 2012](#)).

Career concerns create incentives for managers to engage in opportunistic practices to build their reputation and influence the market's assessment of their abilities. For instance, managers with career concerns have a strong incentive to distort their investment decisions to boost overall performance ([Bebchuk & Stole, 1993](#); [Holmström, 1999](#)). In addition, there is some evidence showing that when facing greater

career concerns, managers spend significantly more efforts in avoiding reporting poor performance (e.g., missing earnings targets) that could cause them to be dismissed from their jobs ([Chen et al., 2017](#)). The prior literature concludes that managers facing career concerns exhibit investment and reporting patterns that create and maintain a positive impression about the firm's financial prospects but that deviate from the objective of stock price maximization.

In this paper, we are interested in the impact of career concerns on managers' intentions to manipulate the content of the narrative sections contained in corporate disclosures. The content of corporate disclosures has increasingly become a key issue in corporate finance. A growing body of the literature establishes that quantitative information alone conveys only a partial picture of firm financial fundamentals and that narrative qualitative information provides important information for stakeholders' decision-making ([Arslan-Ayaydin et al., 2016, 2020](#); [Henry, 2008](#)). In fact, the extant research shows that the linguistic tone of corporate disclosures is incrementally informative for financial numbers and management forecasts ([Baginski et al., 2018b](#); [Henry, 2008](#)) in explaining the firm's cash flows and stock returns. However, in the same way that managers may manipulate earnings numbers, recent

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* Correspondence to: HEC Liège, Management school of the University of Liège. Rue Louvrex 14, 4000 Liège, Belgium.

E-mail address: wtorsin@uliege.be (W. Torsin).

evidence suggests that linguistic tone can be used as a tool to mislead stakeholders. For instance, [Huang et al. \(2014\)](#) find that managers tend to inflate (deflate) the linguistic tone before the events where managers have incentives to increase (decrease) share prices (e.g., seasoned equity offerings, mergers and acquisitions, and stock option grants). Given that markets and boards of directors examine CEO ability using all available information ([Hermalin & Weisbach, 2012](#); [Pan et al., 2015](#)) and that tone drives the market's attention ([Elliot et al., 2015](#)) and has economic consequences ([Davis et al., 2012](#); [Henry, 2008](#); [Loughran & McDonald, 2011](#)), we contribute to the prior literature by examining whether managers with career concerns opportunistically inflate the tone of corporate disclosures to infer a more optimistic view of their performance.

The use of discourse as a means of constructing reality in a way that benefits managers with career concerns at the expense of society is an ethical issue, as "it sustains relations of domination" ([Beelitz & Merkl-Davies, 2012](#), p. 102). We examine whether discourse in corporate communication is being used as a means of influencing organizational audiences' ideas and managing their perceptions. Our study thus adds to the critical corporate communication literature, which regards corporate narrative reporting as a means of consolidating the private interests of corporations, rather than increasing transparency and accountability ([Cho, 2009](#); [Mäkelä & Laine, 2011](#)).

Managers, however, need to bear in mind that opportunistic deviations from the norm to impress and manipulate perceptions can also expose themselves to several costs. The first and probably the most important cost is the loss of credibility. Credibility is a key factor for investors in reacting to financial disclosures. Drawing from persuasion models, [Mercer \(2004\)](#) finds that investors are less likely to rely on corporate disclosures when managers have incentives to be misleading or untruthful at the time of the disclosure. In the presence of situational incentives such as career concerns, the skepticism that surrounds the credibility of financial narratives means that rational users are more likely to discount qualitative information ([El-Haj et al., 2019](#)). This, in turn, reduces the effectiveness of tone manipulation as an impression management tool to infer ability to the labor market. The manipulation of the narrative content of corporate disclosures may therefore become a key concern for stakeholders because if CEOs are myopically focused on furthering their own ends and are encouraged to do so, then they may put the company's legitimacy at risk ([Yuthas et al., 2002](#)), along with the reliability, value and trust in their corporate communication. Litigation risk also constitutes an important cost to tone inflation in qualitative disclosures. [Rogers et al. \(2011\)](#) provide evidence that managers' use of optimistic language increases litigation risk. They show that plaintiffs target optimistic statements in their lawsuits and that controlling for a firm's economic condition, sued firms have unusually linguistically optimistic earnings announcements. The fear of litigation based on voluntary disclosures that are *ex post* overly optimistic can thus reduce managers' tendency toward overoptimism in voluntary disclosures.

Against this backdrop, the question is therefore whether despite being exposed to several costs associated with the manipulation of narrative disclosures, managers with career concerns engage in the upward manipulation of the tone of their voluntary corporate disclosure. This question is of interest, given that both quantitative and qualitative features are used to evaluate managerial abilities and firm performance ([Amir & Lev, 1996](#)). However, little is known about the practices managers with career concerns may devise to enhance their position in the labor market by manipulating the narrative content of corporate disclosures.

[Graham et al. \(2005\)](#) survey more than 400 executives and document that over three-quarters of the respondents report that labor market mobility matters more than short-run compensation in driving the desire to hit earnings benchmarks. Armed with this finding, we exploit the cross-state variation in labor market mobility, which is exogenous to individual firm managers, to test its effects on the tone of

corporate disclosures. Specifically, we proxy career concerns by using the cross-state variation in the enforceability of noncompete provisions in employee contracts across U.S. states. Commonly used in the employment contracts of top executives, noncompetition agreements restrict managers from joining or forming a rival company for a prespecified period of time ([Bishara et al., 2015](#); [Garmaise, 2011](#); [Schwab & Thomas, 2006](#)). A stricter enforcement of these agreements is likely to make managers more concerned about losing their job. We therefore expect that managers in states with a higher enforceability of noncompete clauses are more likely to inflate the tone of the narratives contained in corporate disclosures to signal their ability and performance and ultimately minimize their exposure to forced termination because the costs associated with such terminations are exacerbated by a less mobile labor market.

To test this question, we construct a large sample of more than 51,000 earnings press releases of S&P 1500 firms between 2004 and 2018. We find that managers in states with a higher enforceability of noncompete provisions tend to inflate the tone of earnings press releases, and this effect persists when we control for past performance ([Henry, 2008](#)), CEO compensation, earnings management or information asymmetry ([Boudt et al., 2018](#)). We also include industry, year and CEO fixed effects to control for any remaining unobserved heterogeneity that may correlate with tone. Our main results are robust to alternative word classifications, alternative measures of noncompete enforceability, alternative measures of tone, and a variety of different additional controls. Overall, our findings are consistent with the view that managers with higher career concerns manipulate the content of corporate disclosures by inflating the tone to infer a more optimistic view of their performance.

To ensure that our results are not driven by confounding factors, we conduct a number of identification tests for alternative explanations—first and foremost, earnings management in relation to career concerns and disclosure tone. To ensure that the upward effect of career concerns on tone is a separate effect and cannot be explained by upward earnings management (see, e.g., [Chen et al., 2017](#)), we partition the sample based on accruals- and real-based earnings management measures. If the more optimistic tone of firms is solely driven by upward earnings management, then we should observe that our result is concentrated only in the subsample that has experienced upward earnings changes. Contrary to this view, we find that the relation between noncompete enforceability and tone also persists in subsamples with downward earnings management. This result therefore indicates that career concerns lead managers to persistently manipulate the content of earnings press releases, regardless of their earnings management practices.

Second, our results are contingent on endogeneity problems, given that some factors related to the enforceability of noncompete clauses may drive the use of tone inflation. To rule out endogeneity issues, we establish a causal inference between tone management and noncompete enforceability through a quasi-natural experiment. We follow [Chen et al. \(2017\)](#) and [Jeffers \(2018\)](#) and study the U.S. states that modified their noncompete enforceability through court rulings. The key feature of a change in noncompete enforceability is triggered by court rulings and therefore exogenous to firms or managers. [Jeffers \(2018\)](#) lists six court rulings that led to an increase in the enforceability of noncompete provisions (Wisconsin, Colorado, Georgia, Illinois, Texas, and Virginia). However, the study also identifies three cases where the enforceability of noncompete provisions was loosened (South Carolina, Illinois and Montana). We find some evidence that changes in noncompete provision enforceability causally influence managers' use of tone management.

After documenting an average and causal effect of career concerns on tone, we investigate a series of cross-sectional sensitivity tests. At the manager level, we predict that career concerns should have the greatest impact on managers who are most susceptible to forced turnover, as they will suffer the most from more restricted job opportunities after turnover. The prior research suggests that more junior and less

competent CEOs are more susceptible to forced turnover based on poor firm performance due to a lack of solid track records (Gibbons & Murphy, 1992). Consistent with our prediction, we find that junior CEOs with a lower ability and with a shorter tenure engage more in tone management when they are faced with greater career concerns than do other CEOs. Second, at the firm level, we argue that the sensitivity of forced turnover of managers in well-monitored firms is substantially higher and incentivizes CEOs to engage more in tone inflation to reduce the risk of dismissal. We proxy a firm's monitoring by a high proportion of independent directors on its board, high analyst following and low managerial entrenchment (Bebchuk et al., 2009). We find consistent evidence that managers who are highly monitored tend to engage more in tone inflation to infer a more optimistic view of their performance and limit the risk of turnover.

Viewed collectively, the evidence in this paper suggests a clear correlation between the linguistic features of corporate disclosures and managers' career concerns. These results contribute to the literature in three ways. First, we add to the literature on narrative disclosure. We confirm that managers worry about how firm performance influences the labor market assessment of their ability and performance and that they are willing to make real reporting decisions to improve this perception and build their reputations. The closest work to ours is by Davis et al. (2015) and Bochkay et al. (2019). Davis et al. (2015) show that tone in conference calls is related to manager-specific factors, particularly with early career experiences affecting managerial beliefs. Similarly, Bochkay et al. (2019) find that CEOs use a relatively more positive tone early in their careers to positively influence outsiders' perception of their managerial ability. Our work complements their findings because although age and tenure proxies are related to career concerns, they can also reflect attributes that independently affect a manager's appetite for risk (Malmendier & Nagel, 2011). In contrast, we use a variable for career concerns that is exogenous to individual firm managers. Our findings that an increase in the enforcement of noncompete agreements leads to a strategic manipulation of the content of corporate disclosures is consistent with theory suggesting that career concerns motivate opportunistic behavior.

Second, whether a conscious choice or not, our findings indicate that CEOs put forward an account of events that serve their ends rather than being accountable to organizational stakeholders and to society. In this regard, CEOs inflating the tone are against the ethical and objective reporting of financial performance. Manipulating corporate narratives has a similar effect on the stock market as do other behaviors, such as overstating revenue or assets (Ali et al., 2019; Chen et al., 2017). Hence, our results are consistent with prior business research suggesting that career concerns might be a significant factor affecting CEOs' propensity to engage in unethical practices, such as white-collar crime (Blickle et al., 2006), tax avoidance (Olsen & Stekelberg, 2016), or the manipulation of financial information (e.g., Chen et al., 2017). In fact, our tests complement the results of Chen et al. (2017) on the impact of career concerns on earnings management and show that managers with career concerns tend to inflate the tone of earnings press releases, regardless of earnings management. This result indicates that the management of tone should be considered as a separate and autonomous manipulation tool used by managers facing career concerns.

Finally, our study adds to the policy debate and legal literature on the costs and benefits of noncompete employment provisions (see, e.g., Bishara et al., 2015, for a review of the literature). While many legal scholars contend that noncompete provisions are valuable contractual mechanisms that protect employers from being exploited by their employees, researchers in the management field document several negative consequences of the enforcement of noncompete provisions in areas such as reduced investment per capita by firms (Garmaise, 2011), less efficient employer–employee matching (Marx et al., 2009), more impediment to innovation and entrepreneurship (Samila & Sorenson, 2011) and less reliable earnings reports (Chen et al., 2017). Our

study extends this line of research by documenting another potentially dysfunctional managerial behavior in terms of financial disclosures: managers facing stricter enforcement of noncompete provisions are more likely to feel pressured to be optimistic in their disclosures. In addition, Ball et al. (2003) explain that financial reporting quality is a function of both the accounting standards in force and the legal and economic framework that influences reporting incentives. By examining the impact of noncompete provisions on financial reporting practices, our study illustrates that fundamental message. In particular, this study demonstrates a concrete channel through which institutional factors shape managerial reporting incentives.

This paper proceeds as follows. The next section provides a literature review and builds hypotheses. Section 3 provides a description of the sample, variables and research design. Section 4 describes our main results, while Section 5 provides additional tests. Section 6 concludes the paper.

2. Literature review and hypothesis development

2.1. Literature review

Fama (1980)'s seminal work advances the notion that career concerns can influence corporate performance. He argues that managers are disciplined by an efficient managerial labor market where poor performance by a manager can lead to lower future wages and early dismissal. Since the labor market's perception of a manager's ability is largely determined by his current and past performance, career concerns arise because a manager recognizes that the current evaluations of his/her performance affect his/her future career opportunities. Consequently, a manager has an implicit incentive to be associated with outcomes that reflect positively on his/her ability (Holmström, 1999).

The prior literature shows that managers will undertake strategic actions to manipulate performance signals on which estimates of their abilities are based. For instance, Li et al. (2017) argue that when managers face career concerns, they are more short-term-oriented, which results in forgoing long-term investment opportunities. They find that younger CEOs have greater concerns about their future career, leading them to more frequently enter new lines of business, exit from existing ones and grow through acquisitions rather than through investments. As such, younger CEOs actively send signals to the labor market by pursuing bolder investment activities, compared to those of older CEOs, to appear more competent to outsiders and reduce their career concerns. Chatjuthamard et al. (2015) and Yuan et al. (2019) further find that because of the intrinsic uncertainty and long-term nature of corporate social responsibility (CSR) investments, low-ability CEOs tend to forgo CSR investments due to career concerns. In contrast, high-ability CEOs have better career prospects, allowing them to invest more in CSR since its benefits are generally more impactful in the long term than in the short term (see also Fieseler, 2011). Finally, Bebchuk and Stole (1993) point out that managers' concern for their short-term reputation can lead to distortions in the investment behavior of the firm. Their evidence implies that through their investment decisions, managers have incentives to influence the labor market's assessment of their performance at the expense of the firm value.

The prior research also investigates the impact of career concerns in the context of financial reporting. Kothari et al. (2009) show that because disclosures of bad news generally undermine managerial job security, managers with career concerns tend to hold up the release of bad news. Hermalin and Weisbach (2012) consider the relation between managerial career concerns and disclosure choices and present a model showing that managers' optimal disclosure choices lack transparency, especially when the news is negative. In addition, Chen et al. (2017) argue that increased noncompete enforceability inhibits managers' mobility and makes managers more attentive to the accounting earnings that they report. In particular, they find that when they face greater career concerns, managers spend significantly more

efforts to avoid reporting poor performance (e.g., missing earnings targets) that could cause them to be dismissed from their jobs. As a result, by meeting or beating earnings targets, managers not only make their current jobs more secure but also enhance potential employment opportunities in industries not subject to noncompete provisions.

2.2. Hypothesis development

In this paper, we are interested in the impact of career concerns on managers' intentions to manipulate the content of the narrative sections contained in corporate disclosures. There is strong evidence that stakeholders use qualitative information from corporate disclosures to infer the manager's private information about the firm's financial performance. For instance, Henry (2008) shows that the tone of earnings press releases is significantly positively correlated with short window contemporaneous returns around the date of the disclosures, even after controlling for a firm's financial information and earnings surprise. In addition, Davis et al. (2012) examine the information value of earnings press releases and document a positive correlation between the tone of earnings press releases and future firm profitability, as well as a positive relationship between tone and investors' reaction at earnings announcement. Boudt and Thewissen (2019) further find that the tone of earnings press releases provides information value to stakeholders and that the informativeness of tone increases with the information asymmetry between firms and investors. Similarly, Fu et al. (2019) investigate how the disclosure tone of earnings conference calls helps predict future stock price crash risk. Their result shows how firms exhibiting more pessimistic tone during the current year-end call experience higher stock price crash risk in the coming year. Overall, the evidence in the literature lends considerable support to the notion that the qualitative information in earnings releases provides an indicative performance signal of the firm's financial situation.

We expect that to infer greater optimism and positively influence labor market participants' perceptions of their ability, managers with career concerns tend to manipulate the content of corporate narratives by providing disclosures with a more optimistic tone concerning the firm's financial performance. Words are more elastic than numbers in conveying an impression. Whereas quantitative information is subject to GAAP, enforced by independent auditors and the Securities and Exchange Commission (SEC), the narrative contained in earnings press releases is relatively unregulated, which provides managers with significant discretion in what information to release to stakeholders. This means that the information contained in such disclosure is more difficult to regulate or to litigate against and offers managers an opportunity to more subtly manipulate the labor market's perceptions of the firm's performance by managing the words contained in the earnings press releases. We therefore define the following hypothesis:

Hypothesis 1 (H1). *Managers facing strong career concerns inflate the tone of earnings press releases.*

2.3. Factors moderating the effect of career concerns on tone inflation

The relationship between career concerns and tone is likely to vary cross-sectionally with CEO- and firm-specific characteristics. We predict that career concerns should have the greatest impact on managers who are most susceptible to forced turnover, as they will suffer the most from more restricted job opportunities after turnover. In particular, at the CEO level, junior managers and those with a shorter tenure are likely to face greater pressure to establish or maintain their reputation as capable CEOs because they lack a successful track record. In contrast, more experienced CEOs are less susceptible to terminations based on temporarily poor firm performance. In fact, Dikolli et al. (2014) show that as CEO tenure increases, performance-related dismissals tend to decrease. Furthermore, several papers argue that the risk of CEO termination decreases as CEO tenure increases because CEOs gain power

through investment choices or board selection (Hermalin & Weisbach, 1998; Shleifer & Vishny, 1989). We also expect managers' skill to have an impact on their likelihood of turnover. As argued by Garmaise (2011), CEOs with higher skills are expected to face less pressure in establishing and maintaining their reputation as good managers. As a result, if tone inflation is used more by managers with heightened career concerns as a means of signaling performance, then we expect this effect to be less pronounced for older and more capable CEOs with a longer tenure. We therefore propose the following hypothesis:

Hypothesis 2 (H2). *The positive association between managerial career concerns and tone inflation is more pronounced for CEOs with lower ability or lower seniority.*

Similar to the CEO-specific factors, we expect several firm-specific monitoring mechanisms to affect the relationship between career concerns and tone. In particular, Guo and Masulis (2015) report that in firms with a high proportion of independent board members, the sensitivity of forced CEO turnover to performance is significantly higher. As such, we expect that under a higher degree of board independence, CEOs have more to gain by engaging in tone inflation. In addition, Bratten et al. (2016) show that managers tend to resort to earnings management when covered by a larger number of analysts. Higher analyst coverage increases the scrutiny of managers and, as such, might incentivize them to engage in manipulative behavior. Furthermore, Farrell and Whidbee (2003) show that while making a CEO turnover decision, the board focuses on the deviation from expected performance rather than performance alone, especially when there is a large number of analysts following the firm. As a result, managers of firms with a large number of analysts following are expected to face more pressure to inflate the tone of press releases to send more favorable performance signals. We thus expect the relationship between tone inflation and noncompete enforceability to be stronger as the number of financial analysts covering the firm increases. Similarly, we examine how the relation between tone inflation and the enforceability of noncompete provisions is mediated by CEO entrenchment. Managerial entrenchment can be seen as an adverse protection of managers from the discipline of corporate governance. However, Di Meo et al. (2017) show that entrenchment can also provide benefits for the firm's owners, as entrenchment leads managers to be less myopic in manipulating financial information to meet short-term financial reporting goals. Specifically, the authors show that despite the existence of some incentives to manipulate corporate performance, managers become less prone to earnings management as they become more entrenched. Based on the arguments above, we propose the following hypothesis:

Hypothesis 3 (H3). *The positive association between career concerns and tone inflation is more pronounced for firms with a more independent board, higher analyst coverage and lower entrenchment.*

3. Data, variables, and summary statistics

In this section, we provide an overview of the sample construction, model construction and variable definitions. The details of these variables are discussed in the following subsections and provided in Table 1.

3.1. Data collection

Our universe consists of the S&P 1500 constituents for which compensation data are available on ExecuComp. We collect quarterly earn-

Table 1
Variable definitions.

Variable	Variable description
Panel A — Dependent variables	
<i>Tone</i>	The overall tone in the earnings press release of firm <i>i</i> of year <i>t</i> , during quarter <i>q</i> ; The <i>Tone</i> is measured by: $Tone = \frac{PW - NW}{TW} \times 100,$ where <i>TW</i> represents the total amount of words in the press release. Different libraries are used to define the amount of positive words (<i>PW</i>) and negative words (<i>NW</i>): Loughran and McDonald (2011), (<i>Tone</i> ^{LM}), Henry (2008) (<i>Tone</i> ^{HEN}), as well as their mathematical average (<i>Tone</i>). The cumulative abnormal returns for firm <i>i</i> within a short term time-window around day <i>d</i> of quarter <i>q</i> of year <i>t</i> : [d-1;d+1]. The cumulative abnormal returns are acquired using a market model that is estimated over a window of [d-315; d-63] to obtain $\hat{\alpha}$ and $\hat{\beta}$. <i>CAR</i> [-1;+1] is then obtained by $\sum_{d=1}^{D=1} R - \hat{\alpha} - \hat{\beta} \times R_M$, where <i>R</i> represent the returns on day <i>d</i> + <i>D</i> and <i>R_M</i> represent the returns of the S&P 1500 on day <i>d</i> + <i>D</i> .
<i>CAR</i> [-1;+1]	
Panel B — Independent variables	
<i>CareerConcerns</i>	Enforceability index for state <i>k</i> as constructed by Starr (2018).
<i>BTM</i>	Logarithm of the Book-To-Market ratio for firm <i>i</i> measured at quarter <i>q</i> of year <i>t</i> .
<i>ForecastError</i>	(<i>I</i> / <i>B</i> / <i>E</i> / <i>S</i> actual <i>EPS</i> - median of most recent analysts forecasts) / (stock price at the fiscal year-end, for firm <i>i</i> in quarter <i>q</i> of year <i>t</i>).
<i>NegativeFE</i>	Dummy indicator which is '1' when <i>ForecastError</i> < 0.
<i>Size</i>	Logarithm of the market capitalization of firm <i>i</i> on quarter <i>q</i> 's last day (<i>d</i>), relative to year <i>t</i> (in \$ mil), i.e. $P \times CSHO$. Where <i>P</i> represent the stock price of firm <i>i</i> of quarter <i>q</i> of year <i>t</i> and <i>CSHO</i> captures the number of common shares outstanding of firm <i>i</i> at the end of quarter <i>q</i> of year <i>t</i> .
<i>ROA</i>	ROA of firm <i>i</i> in quarter <i>q</i> of year <i>t</i> , before extraordinary items/beginning total assets.
<i>Alpha</i>	Intercept $\hat{\alpha}$ of the market model, estimated over the [d - 315; d - 63] time window, where <i>d</i> represents the day of earnings announcement within quarter <i>q</i> of year <i>t</i>
<i>SystematicRisk</i>	$\hat{\beta}$ of stock <i>i</i> in quarter <i>q</i> of year <i>t</i> , based on the market model that spans the [d - 315; d - 63] time window, where <i>d</i> represents the day of earnings announcement within quarter <i>q</i> of year <i>t</i> , i.e. $\beta = cov(R; R_M) / var(R_M)$, where <i>R_M</i> represent the returns of the S&P500 on day <i>d</i> of quarter <i>q</i> of year <i>t</i> and <i>R</i> represent firm <i>i</i> 's returns on day <i>d</i> of quarter <i>q</i> of year <i>t</i> (CRSP).
<i>CAR</i> [-62;-2]	The cumulative abnormal returns for firm <i>i</i> in a long term time-window prior to the earnings announcement day <i>d</i> of quarter <i>q</i> of year <i>t</i> : [d-62;d+2]. The cumulative abnormal returns are acquired using a market model that is estimated over a window of [d-315; d-63].
Δ	The sensitivity of the CEO's stock-based compensation for firm <i>i</i> (in \$ million). Δ is measured by using two components: the stock and option Δ_{Stock} and Δ_{Option} are measured by $\Delta_{Stock} = N \times \frac{S}{100}; \Delta_{Option} = \left[\frac{\partial V_{Opt}}{\partial S} \right] \times \frac{S}{100},$ where <i>N</i> represents the number of stocks of the firm that a CEO has in his portfolio, <i>S</i> is the stock price at the end of the fiscal year <i>t</i> , and <i>V</i> is the value of the option portfolio for the CEO. The absolute value of the discretionary accruals of firm <i>i</i> in quarter <i>q</i> of year <i>t</i> , as defined in Prior et al. (2008).
<i>AEM</i>	
<i>REM</i>	The sum of the abnormal CFO, abnormal discretionary expenses, and abnormal production costs, consistent with Roychowdhury (2006).
$\sigma_{Forecast}$	Dispersion of analysts' (last) forecasts for stock <i>i</i> in fiscal quarter <i>q</i> of year <i>t</i> , measured as $\sigma_{Forecast} / (P)$, where <i>P</i> is the stock price of firm <i>i</i> on the last day <i>d</i> of quarter <i>q</i> of year <i>t</i> (CRSP).
σ_{Profit}	The <i>ROA</i> 's standard deviation over the last four quarters preceding quarter <i>q</i> of year <i>t</i> , i.e. $\frac{1}{4} \times \sum_{q=1}^{q=4} (ROA - \bar{ROA})$
<i>NOA</i>	Logarithm of the number of analysts' forecasts for stock <i>i</i> in quarter <i>q</i> of year <i>t</i> .
<i>TradingVolume</i>	Logarithm of number of shares stock <i>i</i> 's traded over the last day of fiscal quarter <i>q</i> of year <i>t</i> . Where <i>CSHO</i> is the number of common shares outstanding of firm <i>i</i> at the end of quarter <i>q</i> of year <i>t</i> (Compustat #25)
<i>Ability</i>	Dummy indicator which equals 1 if the managerial ability score of CEO <i>j</i> of firm <i>i</i> is above the median in quarter <i>q</i> of year <i>t</i> , and zero otherwise.
<i>Tenure</i>	Dummy indicator which equals 1 if the managerial tenure of CEO <i>j</i> of firm <i>i</i> is above the median in quarter <i>q</i> of year <i>t</i> , and zero otherwise.
<i>Age</i>	Dummy indicator which equals 1 if the age of the CEO is above the median in quarter <i>q</i> of year <i>t</i> , and zero otherwise.
<i>Ind Board</i>	Dummy indicator which equals 1 if the proportion of independent board members of firm <i>i</i> is above 50% in quarter <i>q</i> of year <i>t</i> , and zero otherwise.
<i>LowEntrenchment</i>	Dummy indicator, which equals 1 if the entrenchment index for firm <i>i</i> , developed by Bebchuk et al. (2009), is below the sample median. The original index ranges from 0 to 6, with higher numbers indicating higher managerial entrenchment and therefore worse corporate governance.
<i>AnalystCoverage</i>	Dummy indicator which equals 1 if the number of analyst covering firm <i>i</i> in quarter <i>q</i> of year <i>t</i> is above the median, and zero otherwise.

ings press releases from the EDGAR website between January 2004 and December 2018. Since 2003, publicly listed firms have been required to file earnings releases to the SEC on a Form 8-K within four days of the earnings announcement. We select 8-K filings that include an earnings release identified by Item Code 2.02 and exclude those that were not filed within obligated four trading days after their issuance. The press releases are available and found under the tag "<TYPE> EX 99.1". To ensure that the sample includes only earnings press releases, we read all electronic files with a size of at least 10 kilobytes and eliminate the

files containing conference call announcements or other non-earnings-related announcements. We re-encoded the downloaded HTML files, containing the earnings press releases, into a readable format. While parsing the text, we adhered to the following steps applied by previous studies (see, among others, Arslan-Ayaydin et al., 2016, 2020; Boudt et al., 2018; Davis et al., 2012; Davis & Tama-Sweet, 2012; Henry, 2008; Loughran & McDonald, 2011);

1. Removing graphics.

2. Re-encoding characters such as (blank space) or & (backslash) back to their original ACSII form.
3. Removing all text appearing within <TABLE> HTML tags, where more than 15% of the nonblank characters are numbers.

Following Davis et al. (2012), we set a minimum threshold of words in the press releases. We therefore require a press release to have at least 100 words and delete any observation otherwise. Our financial and accounting control variables come from databases such as Compustat, CRSP and I/B/E/S. This reduces the final sample to 51,360 firm-quarter observations.

3.2. Research design

To test Hypothesis 1, we estimate the following cross-sectional regression:

$$Tone = \alpha + \delta \times CareerConcerns + \beta \times Controls + \varepsilon, \quad (1)$$

where ε are Newey–West standard errors, corrected for heteroskedasticity and autocorrelation.¹ *CareerConcerns* is the enforcement of non-compete provisions as defined by (Starr, 2018). δ is the coefficient of interest, which captures the impact of career concerns on the tone of earnings press releases. If firms strategically inflate the tone of earnings press releases as career concerns increase, then we expect δ to be positive. *Controls* represent the set of determinants that have been shown to explain the tone of press releases.

To test Hypotheses 2 and 3, we estimate the following model:

$$Tone = \alpha + \rho \times CareerConcerns \times Factor + \beta \times Controls + \varepsilon. \quad (2)$$

We test for the significance of the coefficients using Newey–West standard errors, where *Factor* is the set of manager- and firm-specific factors listed above that influence the effect of noncompete enforceability on managers' use of tone inflation. For Hypothesis 2, we first capture the seniority of the CEO by constructing a dummy variable (*Tenure*), which is set equal to one for CEOs whose tenure is above median and zero otherwise. Similarly, we define *Age* of the CEO as a dummy variable that equals one if the age of the CEO is above the median and zero otherwise. In addition, we create a dummy variable (*Ability*) set to one if the managerial ability score (as per Demerjian et al. (2012)) of the CEO is above the median and zero otherwise. Hypothesis 2 predicts that ρ is negative.

Hypothesis 3 predicts that intensive monitoring magnifies the effect of career concerns. We first use the entrenchment index data from Bebchuk et al. (2009). The index ranges from zero to five, with higher numbers indicating higher managerial entrenchment. *LowEntrench* is a dummy variable taking the value of 1 when the index is lower than three and zero otherwise. Next, we create an indicator variable, *AnalystCov*, that is set to one if the number of analysts following the firm (*NOA*) is higher than the sample median and zero otherwise. Finally, we measure the board's independence (*IndBoard*) as a dummy variable that takes the value of one whenever the proportion of independent board members is higher than 50% and zero otherwise. We predict that ρ is positive.

3.3. Measure of earnings announcement tone

We define the tone of earnings press releases as the relative spread between the number of positive and negative words (see, e.g., Arslan-Ayaydin et al., 2016, 2020; Brockman & Cicon, 2013; Fu et al., 2019; Marquez-Illescas et al., 2019):

$$Tone = 100 \times \frac{PositiveWords - NegativeWords}{TotalWords}, \quad (3)$$

¹ Our main results continue to hold if we (i) cluster at the firm level, (ii) adopt a two-way clustering (firm and year quarter, and state and year quarter) (Gow et al., 2010; Petersen, 2009), (iii) use the Huber White standard error without clustering or (iv) cluster at the state level.

where *TotalWords* is the total number of words in the disclosure from firm i in quarter q of year t . *PositiveWords* and *NegativeWords* are the numbers of positive and negative words in the earnings press releases, respectively.

There exist different lists of words or dictionaries, and there is no consensus in the literature regarding which word list is more appropriate for the analysis of language in contexts such as financial disclosures. As argued by Rogers et al. (2011), among others, the tone obtained using a single word list should be seen as a (noisy) proxy for the true, but unknown, tone of the text. To reduce the risk of choosing an inappropriate library, we average over the tone obtained by using two established lists of words, namely, the positive and negative wordlists defined by Henry (2008) and those defined by Loughran and McDonald (2011).²

The tone measures based on the two lists are significantly positively correlated but not perfectly correlated. This correlation is consistent with each measure capturing the underlying construct of tone plus some idiosyncratic error.³ While correlations between the Henry (2008) and Loughran and McDonald (2011) individual libraries are 57%, we find that the correlation of each library with our standardized average measure of tone (*Tone*) is 89% and 74%, respectively. In the following sections, we focus our discussion on the average tone measure and test for the robustness of our results to the different libraries.⁴

3.4. Quantifying managers' career concerns – The noncompete enforceability index

The main objective of noncompete provisions is to prevent employees with knowledge of trade secrets, customer or business relationships and other protectable firm-related knowledge from joining or becoming a competitor, thus engaging in unfair competition. A typical noncompete covenant requires that after termination of employment, whether voluntary or forced, the employee may not work in the same or similar line of business activity, either for herself or for anyone else within a designated geographical area for a specified period of time (Garmaise, 2011; Hutter, 1981). Noncompete clauses are common practice today, with between 12% and 50% of the entire U.S. labor force having signed one at some point in their career (Starr et al., 2015). Employees at any level can be required to sign such a covenant, but these restrictions are particularly prevalent among managers and CEOs of public companies (Bishara et al., 2015; Garmaise, 2011).⁵

² Both libraries are popular choices in practice, and we verify that our results are not driven by the choice of library while constructing the tone.

³ An alternative is to use the scores of the first principal component factor analysis (PCA) as in Rogers et al. (2011). Because PCA loads almost equally on the separate sentiment measures, it leads to almost identical results as with the average (standardized) sentiment approach, but the latter has the advantage that the resulting tone is easier to interpret. The results are qualitatively similar when defining tone as the first PCA of the different sentiment measures.

⁴ To provide more evidence of the robustness of our results, we also refer to the tone measure as defined by the DICTION 7.0 libraries, which were used by Davis et al. (2012) to analyze earnings press releases. A limitation of general word lists such as DICTION is that they do not analyze language in the context of financial disclosures, and prior studies suggest that generic linguistic algorithms such as DICTION may yield noisy measures of “positive” and “negative” linguistic tone in the context of financially oriented text passages (see, e.g., Loughran & McDonald, 2011). When using DICTION, we still find qualitatively similar results as for the other libraries.

⁵ There exists abundant anecdotal evidence of noncompetes affecting employees. For instance, in 2012, the CEO of HP, Mark Hurd, took a position at Oracle and was consequently sued on the grounds of breaching the signed noncompete contract. Hurd eventually ended up paying a substantial financial settlement, as well as waving his rights to outstanding stock, which amounted to approximately \$13.6 million. In 2001, Doron Kempel, upon moving from EMC to SANGate, was forced to quit his new position on ground of breaching a noncompete contract, and in 2005, Microsoft sued Google for hiring Kai-Fu

Table 2
Noncompete enforceability and average tone by state.

State	# Obs	Tone	CareerConcerns	State	# Obs	Tone	CareerConcerns
ND	–	–	–4.23	NH	164.00	0.87	0.26
CA	9209.00	0.49	–3.79	WA	1097.00	0.68	0.34
NY	4007.00	0.55	–1.15	AL	377.00	0.41	0.36
AK	11.00	0.66	–0.98	CO	907.00	0.62	0.38
OK	314.00	0.58	–0.94	ME	90.00	1.04	0.41
WV	91.00	0.35	–0.8	TN	950.00	0.51	0.45
MT	54.00	0.98	–0.65	MI	842.00	0.88	0.46
AR	305.00	0.94	–0.58	MA	2777.00	0.52	0.48
RI	153.00	0.55	–0.33	LA	343.00	0.32	0.5
VA	1437.00	0.60	–0.29	DE	173.00	0.66	0.52
TX	4887.00	0.62	–0.28	MD	699.00	0.57	0.6
SC	308.00	0.76	–0.27	VT	51.00	1.06	0.6
HI	81.00	0.70	–0.17	IN	795.00	0.76	0.7
NE	293.00	0.80	–0.13	NM	24.00	0.15	0.74
WI	907.00	0.55	–0.09	ID	176.00	0.39	0.77
MN	1295.00	0.94	–0.07	KY	362.00	0.58	0.85
GA	1515.00	0.58	0.02	NJ	1685.00	0.60	0.9
NV	426.00	0.60	0.03	IL	2763.00	0.69	0.95
MS	113.00	0.61	0.04	UT	262.00	0.88	1
OH	1812.00	0.61	0.08	IA	266.00	0.63	1.01
DC	202.00	0.64	0.12	SD	45.00	1.56	1.02
PA	2281.00	0.63	0.14	MO	1080.00	0.82	1.08
OR	595.00	0.61	0.14	KS	157.00	0.58	1.21
AZ	729.00	0.73	0.15	CT	1107.00	0.55	1.26
NC	1246.00	0.70	0.18	FL	1907.00	0.60	1.6
WY	21.00	0.12	0.23				

Note: This table presents the number of observations and the average tone (*Tone*) per state. The states are ordered by the enforceability of noncompete provisions, as measured by [Starr \(2018\)](#). Note that our dataset does not contain observations for North Dakota (ND), which is known to ban noncompete agreements.

The treatment of noncompete provisions greatly varies from state to state. State-based contract law in the U.S. governs noncompetes, as is the case with most of the law governing the relationship between employers and employees ([Bishara, 2011](#)). In high-enforceability jurisdictions, such as Florida, courts are willing to implement noncompete agreements covering a range of prohibited activities of a relatively long duration of several years and wide geographical scope. These jurisdictions can rewrite the contract terms (known as “blue penciling”) to have enforceable limitations, even if employees entered into such contracts with no reciprocal consideration other than employment. In low-enforceability jurisdictions, such as California and North Dakota, it is nearly impossible to enforce any employee noncompetition agreement at all. However, scrutiny concerning noncompete provisions is growing because the absence of such provisions contributed to the Silicon Valley’s success in California ([Gilson, 1999](#)) and the increased evidence showing the negative effects of noncompete enforceability ([Garmaise, 2011](#); [Marx et al., 2009](#); [Samila & Sorenson, 2011](#); [Starr et al., 2015](#)). Since the agreement extends the duties of an employee after termination of professional duties, noncompete provisions constrain post employment opportunities and, thereby, increase job-switching costs ([Vanko, 2002](#)). A noncompete agreement will thus substantially increase a manager’s career concerns since he/she will not be able to be freely active in his/her field of expertise for a given period of time, often ranging from several months up to three years.

[Bishara \(2011\)](#) constructed an index measuring the enforceability of managers’ noncompete agreements. This index captures the strength of the legal enforcement of noncompete agreements, with higher values indicating stricter enforcement. It is constructed based on an elaborate survey by [Malsberger \(2015\)](#) of various labor market participants concerning noncompete covenants in each state in the U.S. [Bishara \(2011\)](#) assigns a score, ranging between zero and 10, to seven dimensions

of noncompete enforceability and constructs an overall measure by assigning subjective weights to each of these scores.⁶ Using factor analysis, [Starr \(2018\)](#) improves upon Bishara’s subjectively chosen weights, which results in a more objective measure of noncompete enforceability.⁷ We focus in this study on the enforceability data developed by [Starr \(2018\)](#). [Table 2](#) provides the enforceability score for each U.S. state.⁸

3.5. Control variables

Industry dummies, firm size (measured as the logarithm of the firm’s market capitalization, *Size*) and the logarithm of the firm’s book-to-market ratio (*BTM*) are included in our regressions to control for firm characteristics. Additionally, five variables are included to control for a firm’s concurrent and past performance: (i) the firm’s return on assets reported for that quarter (*ROA*), (ii) the analysts’ forecast error (*ForecastError*), (iii) the dummy *NegativeFE* to indicate a negative earnings surprise for firm *j* in quarter *q* of year *t*, (iv) the cumulative abnormal return from the [d-62;d-2] trading day window (*CAR*[d – 62; d – 2]) and (v) the estimated intercept (*Alpha*) from the event study regression that spans the [d-315;d-63] time window, where d=0 is the earnings announcement day of quarter *q* in year *t*.

As proxies for information asymmetry, we include the logarithm of the number of financial analysts following in quarter *q* in year *t* (*NOA*) and the logarithm of number of traded shares (*TradingVolume*)

⁶ Note that the questionnaires by [Malsberger \(2015\)](#) are not updated on an annual basis. Therefore, the enforceability index is only available for the years 1991 and 2009. For proximity with our dataset, we keep the index of 2009 fixed for of our sample years, consistent with, e.g., [Chen et al. \(2017\)](#).

⁷ [Starr \(2018\)](#) shows a close fit between the objective factor weights and [Bishara \(2011\)](#)’s subjective measure (a correlation of 0.97 throughout all the years).

⁸ In untabulated tables, we confirm that our results remain qualitatively similar when we repeat our regressions with the original metric developed by [Bishara \(2011\)](#) and the alternative measure defined by [Garmaise \(2011\)](#). These results are available upon request.

Lee on the grounds of breaking a noncompete clause, for which they ended up financially settling. Finally, Gianfranco Lanci left his CEO position at Acer in 2012 for a consultant job at Lenovo and ended up financially settling in court on the grounds of breaking the noncompete clause.

Table 3
Summary statistics.

Panel A - Summary statistics of the dependent variables, tone measures and relevant controls					
	Mean	Std. Dev.	Q25	Median	Q75
<i>Tone</i>	0.607	0.729	0.148	0.535	0.993
<i>Tone</i> ^{HEN}	0.013	0.011	0.005	0.011	0.018
<i>Tone</i> ^{LM}	-0.001	0.006	-0.003	-0.001	0.002
<i>CareerConcerns</i>	-0.505	1.655	-1.150	0.080	0.480
<i>CareerConcerns</i> ^{IDD}	0.474	0.499	0	0	1
Δ^*	1.145	1.475	0.269	0.839	1.135
<i>AEM</i>	0.184	0.522	0.010	0.037	0.150
<i>REM</i>	0.045	1.249	0	0.018	0.079
<i>BTM</i> [*]	0.912	0.642	0.392	0.778	1.338
<i>NegativeFE</i>	0.336	0.472	0	0	1
<i>Size</i> [*] (in million \$)	13.469	3.761	13.098	14.183	15.344
<i>ROA</i>	0.811	3.034	0.006	0.219	1.632
<i>Alpha</i>	38.667	74.504	-0.011	0.138	60.483
<i>SystematicRisk</i>	0.766	0.745	0.001	0.837	1.290
<i>CAR</i> [-62; -2]	-0.307	14.652	-3.075	-0.008	2.195
<i>ForecastError</i>	0.042	0.815	-0.046	0.048	0.195
$\sigma_{Forecast}$	0.803	3.256	0.069	0.170	0.459
σ_{Profit}	0.013	0.029	0.003	0.006	0.013
<i>NOA</i> [*]	11.784	7.836	6	10	16
<i>TradingVolume</i>	3.330	1.812	1.153	4.138	4.826
<i>Ability</i> ⁺	0.567	0.290	0.300	0.6	0.8
<i>Age</i> ⁺	56.86	6.792	52.000	57.000	61.000
<i>Tenure</i> ⁺	9.057	8.182	3.000	6.000	12.000
<i>Entrenchment</i> ⁺	2.500	1.223	2.000	3.000	3.000
<i>Ind Board</i> ⁺	0.813	0.099	0.750	0.833	0.889
Panel B - Average Tone per calendar year (Multiplied by 100)					
Year	# Observations	<i>Tone</i>	<i>Tone</i> ^{HEN}	<i>Tone</i> ^{LM}	
2004	1,367	0.7097	1.3914	0.028	
2005	3,299	0.741	1.408	0.074	
2006	3,546	0.6828	1.3216	0.044	
2007	3,777	0.6668	1.3229	0.0107	
2008	4,197	0.4819	1.1208	-0.157	
2009	4,140	0.2237	0.7106	-0.2632	
2010	4,166	0.5821	1.2252	-0.0611	
2011	4,074	0.5905	1.25	-0.069	
2012	3,271	0.5104	1.0356	-0.0148	
2013	3,944	0.7019	1.4351	-0.0313	
2014	4,243	0.738	1.503	-0.0269	
2015	3,395	0.6449	1.3316	-0.0418	
2016	2,299	0.6671	1.3752	-0.0409	
2017	3,329	0.6446	1.3278	-0.0386	
2018	2,313	0.7015	1.4318	-0.0288	

Note: This table reports the summary statistics of the dependent and independent variables reported in Table 1. We note that in the multivariate analyses, we use the logarithm of the variables indicated by a * but report the untransformed summary statistics for interpretation purposes.

+ indicates that the variable will be transformed into a dummy (one if higher than the median) for multivariate analysis (the sole exception is for entrenchment, where the dummy variable (*LowEntrench*) is '1' when the firm experiences entrenchment that is lower than the median).

measured over quarter q of year t , standardized by the number of shares outstanding. Firms with high information asymmetry have lower analyst coverage (Roulstone, 2003) as well as lower share turnover because uninformed traders are less likely to trade in these shares, knowing that they will lose to informed traders (Mohd, 2005). We expect firms with less information asymmetry to engage less in tone inflation and thus be on average less optimistic in their earnings press releases.

Three variables are included to control for information uncertainty: (i) analyst forecast dispersion ($\sigma_{Forecast}$), as defined by Das et al. (1998); (ii) the standard deviation of ROA (σ_{Profit}) over the four quarters preceding the end of fiscal quarter q of year t , as defined by Core et al. (2003); and (iii) the firm's systematic risk (*SystematicRisk*), estimated in the event study regression that was used to compute *Alpha*.

4. Results

4.1. Summary statistics

Panel A of Table 3 reports the summary statistics of the dependent and the control variables. We find that *Tone* and *Tone*^{HEN} are, on

average, positive. However, we find the average tone to be negative for the Loughran & McDonald library, which is consistent with the findings of Loughran and McDonald (2011), Huang et al. (2014) and Baginski et al. (2018a) and Arslan-Ayaydin et al. (2016). Panel B provides the number of observations and average tone measures by year. *Tone*^{LM} is lower on average and consistently holds a negative sign around and after the financial crisis period, starting in 2008. *Tone*^{HEN} follows the same dip but remains positive throughout the years.

The remaining summary statistics show similar characteristics to those of previous research (see, e.g., Arslan-Ayaydin et al., 2016, 2020). With a *BTM* smaller than one, our firms are, on average, growth-oriented. The high standard deviation indicates that both undervalued and overvalued firms are represented. *ForecastError* is positive on average, denoting that analysts generally underestimate earnings by approximately 4.2%, and *NegativeFE* indicates that only approximately 34% are forecast overestimations. The median number of analysts is 10. Moreover, we report a relatively high *Size* with a small standard deviation. This finding is in line with our expectations since our dataset covers firms that are, or at one point were, part of the S&P 1500. Furthermore, the distribution of the return on assets, *ROA*, reveals that our sample includes both successful and less successful firms.

Table 4
Correlation table.

	<i>Tone</i>	<i>Tone</i> ^{HEN}	<i>Tone</i> ^{LM}	<i>CareerConcerns</i>	<i>IDD</i>	Δ	<i>AEM</i>	<i>REM</i>	<i>BTM</i>	<i>NegativeFE</i>	<i>Size</i>	<i>ROA</i>	
<i>Tone</i> ^{HEN}	0.890***												
<i>Tone</i> ^{LM}	0.741***	0.352***											
<i>CareerConcerns</i>	0.057***	0.068***	0.017***										
<i>Careerconcerns</i> ^{IDD}	0.039***	0.056***	-0.002	0.419***									
Δ	0.132***	0.157***	0.039***	-0.027***	0.019***								
<i>AEM</i>	0.089***	0.114***	0.014***	-0.014***	0.020***	0.040***							
<i>REM</i>	0.029***	0.016***	0.035***	-0.092***	-0.049***	-0.029***	0.060***						
<i>BTM</i>	0.045***	0.182***	-0.175***	0.036***	0.007	-0.001	0.063***	-0.037***					
<i>NegativeFE</i>	-0.106***	-0.079***	-0.101***	0.038***	-0.007	-0.083***	-0.003	-0.049***	0.103***				
<i>Size</i>	0.102***	0.119***	0.034***	0.033***	0.079***	0.454***	-0.028***	-0.135***	-0.176***	-0.108***			
<i>ROA</i>	0.046***	-0.014***	0.115***	0.008	-0.003	0.098***	-0.031***	-0.009*	-0.270***	-0.128***	0.134***		
<i>Alpha</i>	0.021***	0.009*	0.031***	-0.001	-0.004	0.029***	-0.006	0.024***	-0.109***	-0.054***	0.027***	0.093***	
<i>SystematicRisk</i>	-0.039***	-0.065***	0.015***	-0.039***	-0.028***	-0.103***	0.036***	0.049***	-0.040***	0.008*	-0.122***	-0.003	
<i>CAR</i> [-62; -2]	-0.009**	-0.005	-0.011**	-0.003	0.003	-0.006	0.001	-0.009**	0.085***	-0.018***	-0.034***	-0.037***	
<i>ForecastError</i>	0.047***	0.026***	0.059***	-0.024***	0.002	0.013***	-0.006	0.022***	-0.063***	-0.444***	0.044***	0.090***	
$\sigma_{Forecast}$	-0.042***	0.019***	-0.114***	-0.003	0.018***	-0.027***	0.051***	0.014***	0.270***	0.069***	-0.149***	-0.098***	
σ_{Profit}	-0.063***	-0.059***	-0.043***	-0.072***	-0.006	-0.062***	0.125***	0.075***	0.012***	0.025***	-0.186***	-0.245***	
<i>NOA</i>	0.040***	0.051***	0.006	-0.105***	-0.049***	0.350***	-0.008*	-0.034***	-0.062***	-0.090***	0.670***	0.063***	
<i>TradingVolume</i>	-0.109***	-0.133***	-0.027***	-0.096***	-0.071***	-0.032***	-0.004	0.018***	-0.040***	0.009**	-0.004	0.033***	
	<i>SystematicRisk</i>		<i>CAR</i> [-62; -2]		<i>ForecastError</i>		$\sigma_{Forecast}$		σ_{Profit}		<i>NOA</i>		<i>Alpha</i>
<i>SystematicRisk</i>	0.300***												
<i>CAR</i> [-62; -2]	-0.105***		-0.562***										
<i>Forecast</i>	0.002		0.015***		0.034***								
$\sigma_{Forecast}$	0.052***		0.047***		-0.097***		-0.038***						
σ_{Profit}	0.070***		0.028***		-0.003		0.116***		-0.004				
<i>NOA</i>	-0.004		0.018***		-0.057***		-0.067***		-0.076***		-0.019***		
<i>TradingVolume</i>	-0.015***		-0.012**		0.101***		0.138***		0.204***		0.125***		0.031***

This table reports the Pearson correlation for the different performance measures, tone measurements and financial and accounting control variables. * indicates that the variable will be transformed into a dummy (one if higher than the median) for multivariate analysis (the sole exception is for entrenchment, where the dummy variable (*LowEntrench*) is '1' when the firm experiences entrenchment that is lower than the median). *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively.

We perform sensitivity analysis for several CEO characteristics. We find that the CEO's tenure in a firm (*Tenure*) is on average approximately nine years. We also find that the average age of CEOs (*Age*) is approximately 57 years and that the percentage of independent board members is, on average, approximately 81% (*IndBoard*). The average entrenchment index is low, with a median value of 3, which reflects relatively low conflicts of interest between managers and shareholders. Following Demerjian et al. (2012)'s measure of *Ability*, we find that our sample contains both highly able CEOs (close to one), as well as CEOs with low ability (close to zero). In fact, we find that the average value for their measure is 0.567.

Table 4 reports the Pearson correlations of our independent variables and relevant control variables. There is a positive correlation between *CareerConcerns* and several measures of *Tone*. This positive correlation is in line with Hypothesis 1, which argues that a stricter enforceability of noncompetes leads to an inflated tone. In addition, control variables are significantly correlated with *Tone*, indicating that multivariate regressions are appropriate.

4.2. Main result – The effect of career concerns on the tone of earnings press releases

The estimation results of Eq. (5) are presented in Table 5, where the estimated coefficients on the industry, quarter, and year dummy variables are suppressed for presentation purposes. Consistent with Hypothesis 1, we find in Model (1) that a stricter enforcement of noncompetes is associated with a more optimistic tone in earnings press releases after controlling for the information environment, growth, past performance, and uncertainty.

Model (1) further shows a positive relationship between *ROA* and *Tone*, indicating that a more profitable quarter is reflected through a more optimistic composition of the earnings press releases. There also exists a positive relationship between firm size and tone, whereas we find that the volatility of profits (σ_{Profit}) and forecast dispersion ($\sigma_{Forecast}$) significantly reduce optimism. Finally, there also exists a

negative relationship between the book-to-market ratio (*BTM*) and tone.

Arslan-Ayaydin et al. (2016) find that CEOs' compensation sensitivity to the stock price is positively correlated with tone inflation. They argue that given investors' positive reaction to tone at earnings announcement, managers inflate the tone of earnings press releases to maximize their stock-based compensation. Furthermore, there exists evidence that in exchange for signing a noncompete agreement, the CEO may bargain for a higher compensation package (see, e.g., Rassas, 2009). It is therefore possible that the use of tone management could be inflated as a consequence of the CEO's compensation, rather than his/her career concerns. To correct for this effect, we control for CEO compensation by introducing the sensitivity of the CEO's stock-based compensation (Δ in mil.). Model (2) shows that the relationship between career concerns and tone inflation remains highly significant after controlling for CEO compensation.

Note that the positive relationship between noncompete enforceability and tone might be driven by managerial writing style and other motivations and attributes, such as CEO overconfidence. One could argue that overconfident CEOs are also more likely to inflate the tone of earnings releases. Because overconfidence is a permanent attribute of the CEO, the inflation of the tone may not be entirely due to their labor market mobility. To correct for these attributes, we include CEO fixed effects in this regression. Model (3) of Table 5 shows that our conclusions remain qualitatively similar, albeit with differences in coefficient size.

4.3. Robustness tests

4.3.1. Endogeneity tests — Quasi-natural experiment

Our results find a robust positive relationship between career concerns and the management of tone in earnings press releases. However, although the state-level enforceability of noncompete covenants is external to the firm and therefore exogenous, it is difficult to establish a causal inference based on it due to potential endogeneity problems. One form of the endogeneity concern in our setting is that some omitted

Table 5
Career concerns and the tone of earnings press releases.

	Tone		
	Model (1)	Model (2)	Model (3)
(Intercept)	0.588*** (0.042)	0.614*** (0.042)	-0.377*** (0.111)
<i>CareerConcerns</i>	0.023*** (0.002)	0.024*** (0.002)	0.004** (0.002)
Δ		0.018*** (0.002)	0.020*** (0.003)
<i>BTM</i>	-0.155*** (0.006)	-0.151*** (0.006)	-0.182*** (0.007)
<i>NegativeFE</i>	-0.171*** (0.007)	-0.169*** (0.007)	-0.161*** (0.006)
<i>Size</i>	0.019*** (0.002)	0.017*** (0.002)	0.024*** (0.002)
<i>ROA</i>	0.022*** (0.001)	0.021*** (0.001)	0.018*** (0.001)
<i>Alpha</i>	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)
<i>Beta</i>	0.020*** (0.007)	0.021*** (0.007)	-0.008 (0.006)
<i>CAR</i> [-62; -2]	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
$\sigma_{Forecast}$	-0.005*** (0.001)	-0.005*** (0.001)	-0.003*** (0.001)
σ_{Profit}	-1.202*** (0.113)	-1.204*** (0.113)	-0.486*** (0.103)
<i>Forecast</i>	0.002 (0.004)	0.002 (0.004)	0.011*** (0.003)
<i>NOA</i>	-0.010* (0.005)	-0.019*** (0.006)	-0.034*** (0.009)
<i>TradingVol</i>	-0.082*** (0.006)	-0.079*** (0.006)	-0.053*** (0.030)
Year fixed effects	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
CEO fixed effects	No	No	Yes
R ²	0.135	0.136	0.559
Adj. R ²	0.134	0.135	0.522
Num. obs.	51,360	51,360	51,360
VIF	1.783	1.783	1.847

Note: This table displays the results of Eq. (5) concerning Hypothesis 1 on the effect of career concerns on the tone of earnings press releases. The definitions of the variables are provided in Table 1. Models (1), (2) and (3) report the impact of noncompete enforceability on the tone of earnings press releases while suppressing year, quarter, and industry controls, respectively. Newey–West standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. Goodness of fit is evaluated by R² and adj. R². The highest variance inflation factor among all variables is reported under VIF.

variables might drive the state-level enforceability of noncompetes and managers' inflation of tone. To mitigate this concern, we draw inspiration from Chen et al. (2017) and make use of the fact that several states amended their noncompete legislation. Such changes in noncompete enforceability are defined at the state level and are therefore independent of managers' behavior or other career concern measures such as age, compensation, or tenure. This setting also allows us to observe the causal effect of career concerns on tone inflation.

We expect that tighter noncompete enforceability causes managers to be more concerned about their future prospects and, therefore, to be more optimistic in their earnings press releases. We exploit the eight court rulings identified by Jeffers (2018), which caused changes in noncompete enforceability between 2009 and 2013. She lists six rulings that led to an increase in the enforceability of noncompete provisions (Wisconsin, Colorado, Georgia, Illinois, Texas, and Virginia), while she identifies three cases where the enforceability of noncompetes was loosened (South Carolina, Illinois and Montana).⁹

⁹ In the case of Illinois, the state supreme court's decision to tighten noncompete restrictions in 2011 was followed the year after by an appellate

Panel A of Table 6 reports summary statistics for the change in the average tone before and after the change in noncompete enforceability. In terms of tightening noncompete regulations, we find that in three instances, an increase in the enforceability of noncompete provisions leads to a significant increase in the average tone. This indicates that subsequent to increased noncompete enforceability, the likelihood of managers inflating the tone of earnings press releases increases significantly. We further find that a decrease in the enforceability of noncompete provisions is associated with a significant change in the tone of earnings press releases in one case; however, this is only significant at the 10% level.

We next exploit the staggered changes in noncompete enforceability and define a variable *EnforceChange* that takes the value of '1' for firm *i* in year *t* if it was located in a state with an increase in noncompete enforceability, conditional on year *t* being the year of change or after. Given that Illinois reverted back to its pre-2011 status in 2013, we only hold *EnforceChange* equal to '1' for 2012 and 2013 and set it back to zero after. Similarly, *EnforceChange* takes the value of '-1' if a decrease took place. We conduct a regression analysis and define the following model:

$$Tone = \alpha + \beta \times EnforceChange + \gamma \times Controls + \epsilon, \quad (4)$$

where *Controls* represents the relevant set of control variables, as defined in Section 3.3. We test for the significance of the coefficients using Newey–West standard errors. The results are reported in Panel B of Table 6.

In Model (1), we consider all states in which court rulings took place and find that *EnforceChange* is statistically significant with a coefficient equal to 0.119. This result indicates that on average, tighter enforceability causally results in an increase in disclosure optimism. In Models (2) and (3), we further split our sample into only firms located in states that experienced an increase (*IncreaseChange*) and a decrease (*DecreaseChange*) in enforceability, respectively.¹⁰ In line with the univariate tests in Panel A, we find that *IncreaseChange* is positively associated with the level of discourse tone, whereas *DecreaseChange* does not display a significant association with disclosure tone.

4.3.2. Alternative library specifications

One potential shortcoming of our tone measure used in the previous subsection is that it includes discussions on past performance as well as forward-looking statements. A significant component of our tone measure might therefore proxy how managers discuss firm past performance instead of future prospects. To mitigate such a concern and isolate the forward-looking information about managerial and investor perceptions for the future, we follow Huang et al. (2014) and Fu et al. (2019) and apply an abnormal tone measurement to proxy the unexpected optimistic or pessimistic component of tone that cannot be explained by past performance and firm fundamental characteristics.

The abnormal tone is calculated from a cross-sectional regression of tone on firm current year performance and fundamentals. Based on Arslan-Ayaydin et al. (2016), our residual tone measurement (*AbTone*) is calculated as the residual term (ϵ) of the following regression:

$$Tone = \alpha + \beta \times Controls + \epsilon, \quad (5)$$

where *Controls* is the same set of control variables as applied in Eq. (5). The results in Model (1) of Table 7 show that our main findings are robust to the residual tone measurement, confirming that the unexpected

of court decision. As such, in 2013, the noncompete enforceability in Illinois reverted back to its original 2011 level. Note that our conclusions concerning state-level changes in noncompete enforceability hold if we exclude Illinois from our sample altogether.

¹⁰ When studying the increase in enforceability, we exclude Illinois firms after 2013, whereas we remove pre-2011 Illinois observations when studying the sample of enforceability decreases.

Table 6

Endogeneity tests — changes in enforceability.

Panel A — Univariate analysis of changes in career concerns							
State	Year of Change	Before		Tone Direction	After		t-stat
		Mean	No. of Obs.		Mean	No. of Obs.	Before vs. After
Increase in CareerConcerns							
WI	2009	0.531	475	↗	0.570	432	−0.991
CO	2011	0.572	315	↗	0.645	592	−1.043
GA	2011	0.501	945	↗	0.710	570	−5.581***
IL+	2011	0.683	1,330	↗	0.709	445	−1.941*
TX	2011	0.606	2,747	↗	0.638	2,140	−1.655*
VA	2013	0.608	993	↗	0.582	444	0.331
Decrease in CareerConcerns							
SC	2010	0.852	144	↘	0.681	164	1.911*
IL++	2013	0.709	445	↘	0.691	988	−0.010
MT	2012	0.973	33	↘	0.995	21	−0.012
Panel B — Impact of changes in career concerns on the tone of earnings press releases							
	Tone						
	Change in Enforceability		Increase in Enforceability		Decrease in Enforceability		
	Model (1)			(WI, CO, GA, IL, TX, VA) Model (2)		(SC, IL, MT) Model (3)	
(Intercept)	0.601*** (0.086)			0.603*** (0.091)		0.410 (0.403)	
EnforceChange	0.062*** (0.018)						
IncreaseChange				0.072** (0.036)			
DecreaseChange						0.101 (0.095)	
Δ	0.027*** (0.005)			0.027*** (0.006)		0.033* (0.018)	
BTM	−0.117*** (0.013)			−0.117*** (0.013)		−0.078** (0.033)	
NegativeFE	−0.188*** (0.014)			−0.189*** (0.015)		−0.138*** (0.042)	
Size	0.017*** (0.004)			0.021*** (0.004)		0.003 (0.008)	
ROA	0.045*** (0.005)			0.044*** (0.005)		0.050* (0.026)	
Alpha	−0.001*** (0.000)			−0.001*** (0.000)		−0.001** (0.000)	
Beta	0.055*** (0.016)			0.041** (0.016)		0.190*** (0.064)	
CAR[−62; −2]	−0.001** (0.000)			−0.001** (0.000)		−0.001 (0.002)	
σ _{Forecast}	−0.013*** (0.002)			−0.014*** (0.002)		−0.002 (0.006)	
σ _{Profit}	−2.037*** (0.341)			−1.722*** (0.360)		−4.096*** (0.798)	
ForecastError	0.001 (0.006)			0.002 (0.007)		0.011 (0.011)	
NOA	0.008 (0.012)			0.001 (0.012)		0.046 (0.034)	
TradingVolume	−0.073*** (0.012)			−0.069*** (0.013)		−0.114*** (0.035)	
Year fixed effects	Yes			Yes		Yes	
Quarter fixed effects	Yes			Yes		Yes	
Industry fixed effects	Yes			Yes		Yes	
R ²	0.163			0.171		0.149	
Adj. R ²	0.160			0.168		0.127	
Num. obs.	12,778			11,428		1,558	
VIF	1.528			1.559		1.531	

Note: Panel A of this table presents the summary statistics of court rulings resulting in a change in noncompete enforceability, as defined by Jeffers (2018). We report the year of legislative change, state, mean of the tone before and after the court ruling, and the direction of tone change. The last column reports the significance of the sample differences. + indicates that a statistical comparison is made between the pre-2011 period and the 2011-2013 period. ++ indicates that a statistical comparison is made between the 2011-2013 period and the post-2013 period. Panel B displays the results of Equation Eq. (4) concerning the effect of increases/decreases in career concerns on the tone of earnings press releases. The definitions of the variables are provided in Table 1. Model (1) reports the results using a sample of firms located in the states where amendments take place. Model (2) reports the results in states where the only increases took place. In Model (3), we isolate firms located in states that experienced enforcement decreases. We report Newey–West standard errors (in parentheses), and the significance of the coefficients is tested. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. Goodness of fit is evaluated by R² and adj. R². The highest variance inflation factor among all variables is reported under VIF.

Table 7
Robustness tests — Alternative dictionaries to measure tone.

	<i>AbTone</i>	<i>Tone^{HEN}_{SPREAD}</i>	<i>Tone^{HEN}</i>	<i>Tone^{LM}</i>
	Model (1)	Model (2)	Model (3)	Model (4)
(Intercept)	0.016 (0.046)	0.371*** (0.018)	0.389*** (0.106)	0.111*** (0.037)
<i>CareerConcerns</i>	0.025*** (0.002)	0.005*** (0.001)	0.037*** (0.003)	0.011*** (0.002)
Δ	0.005** (0.002)	0.004*** (0.001)	0.027*** (0.004)	0.008*** (0.002)
<i>BTM</i>	0.014 (0.015)	-0.057*** (0.004)	-0.170*** (0.010)	-0.132*** (0.013)
<i>NegativeFE</i>	0.001 (0.008)	-0.069*** (0.003)	-0.244*** (0.012)	-0.095*** (0.007)
<i>Size</i>	-0.001 (0.001)	0.006*** (0.001)	0.035*** (0.003)	-0.002* (0.001)
<i>ROA</i>	-0.001 (0.011)	0.005** (0.002)	0.016*** (0.006)	0.027*** (0.009)
<i>Alpha</i>	0.000 (0.000)	-0.000*** (0.000)	-0.001*** (0.000)	0.000 (0.000)
<i>Beta</i>	0.002 (0.022)	0.000 (0.003)	0.039*** (0.010)	0.003 (0.008)
<i>CAR</i> [-62; -2]	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
$\sigma_{Forecast}$	0.001 (0.002)	-0.002*** (0.001)	-0.003* (0.002)	-0.006*** (0.001)
σ_{Profit}	0.132 (0.339)	-0.299*** (0.080)	-1.728*** (0.260)	-0.680** (0.286)
<i>ForecastError</i>	-0.001 (0.003)	-0.001 (0.002)	0.001 (0.006)	0.003 (0.003)
<i>NOA</i>	-0.001 (0.005)	-0.005** (0.002)	-0.009 (0.009)	-0.028*** (0.004)
<i>TradingVolume</i>	0.003 (0.008)	-0.017*** (0.003)	-0.131*** (0.008)	-0.026*** (0.006)
Year fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
R ²	0.006	0.111	0.114	0.110
Adj. R ²	0.005	0.111	0.114	0.110
Num. obs.	51,360	51,360	51,360	51,360
VIF	1.613	1.613	1.613	1.613

Note: This table tests the robustness of the results on Hypothesis 1 to the use of alternative libraries to measure the tone of earnings press releases. Model (1) uses the abnormal tone (*AbTone*), which is measured as the residual component of tone regressed against the relevant controls as argued in Equation 4.2. Model (2) relies on the relative difference in positive and negative words as per Henry (2008); that is, we scale the difference between the positive and negative words by the sum of the positive and negative words in the press release. Model (3) measures the tone using the library of Henry (2008), and Model (4) uses the library of Loughran and McDonald (2011). The definitions of the variables are provided in Table 1. Newey–West standard errors (in parentheses) are used to test the significance of the coefficients. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. Goodness of fit is evaluated by R² and adj. R². The highest variance inflation factor among all variables is reported under VIF.

optimistic component of tone is positively correlated with managers' career concerns.

We next consider an alternative aggregation proposed by Henry (2008), where tone is proxied by the difference between the number of positive and negative words, expressed in terms of the sum of the number of positive and negative words. The calculation can be demonstrated as follows: $\frac{PositiveWords - NegativeWords}{PositiveWords + NegativeWords}$, provided that $PositiveWords + NegativeWords > 0$; otherwise, the tone is set to 0. The results are reported in Model (2) and again confirm the positive relationship between career concerns and disclosure optimism.

To further show that our results are robust to the choice of the library, we repeat the regression of Eq. (4) for the two components of our tone measure. Recall that our main results are obtained using the averaged value of tone based on the Henry (2008) and Loughran and McDonald (2011) libraries. As shown in Table 7, we find that our conclusions remain robust when using *Tone^{HEN}* or *Tone^{LM}* individually.

Table 8
Inevitable Disclosure Doctrine (IDD) and the tone of earnings press releases.

<i>Tone</i>	Model (1)	Model (2)
(Intercept)	0.578*** (0.004)	0.628*** (0.045)
<i>CareerConcerns^{IDD}</i>	0.061*** (0.006)	0.033*** (0.006)
Δ		0.016*** (0.003)
<i>BTM</i>		-0.151*** (0.012)
<i>NegativeFE</i>		-0.168*** (0.008)
<i>Size</i>		0.016*** (0.002)
<i>ROA</i>		0.021** (0.009)
<i>Alpha</i>		-0.001*** (0.000)
<i>Beta</i>		0.020** (0.010)
<i>CAR</i> [-62; -2]		-0.000 (0.000)
$\sigma_{Forecast}$		-0.005*** (0.001)
σ_{Profit}		-1.267*** (0.285)
<i>ForecastError</i>		0.002 (0.004)
<i>NOA</i>		-0.021*** (0.006)
<i>TradingVolume</i>		-0.082*** (0.006)
Year fixed effects	No	Yes
Quarter fixed effects	No	Yes
Industry fixed effects	No	Yes
R ²	0.002	0.133
Adj. R ²	0.002	0.133
Num. obs.	51,360	51,360
VIF	--	1.800

Note: This table tests the robustness of our results to alternative measures of career concerns. This table replaces the enforcement of non-compete provisions by the Inevitable Disclosure Doctrine and tests its relationship with the tone of earnings press releases. All variables are defined in Table 1. The significance of the coefficients is tested using Newey–West standard errors (reported in parentheses). *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. Goodness of fit is evaluated by R² and adj. R².

4.3.3. Alternative career concerns metrics — Inevitable Disclosure Doctrine

To further test the robustness of our findings, we repeat our analysis using an alternative measure of career concerns. In particular, we replace our measure of a manager's career concerns with the recognition of the IDD by U.S. state courts (*CareerConcerns^{IDD}*). The IDD is a legal doctrine that restricts employers from working for a competitor firm if the prior employer can demonstrate that the employee will be unable to refrain from using, or revealing, to the new employer previously obtained trade secrets and proprietary knowledge belonging to the original employer (Kahnke et al., 2011; Klasa et al., 2018). IDD and covenants not to compete crucially differ in terms of the breadth of their applicability. Even if an employer has not signed a noncompete disclosure, the IDD can still be a legal basis for a firm to seek judicial intervention to prohibit a former employee's mobility based on the likelihood of an inevitable misappropriation of a trade secret. Overall, 18 states currently apply this doctrine (Klasa et al., 2018).¹¹

Models (1) and (2) of Table 8 show the association between *CareerConcerns^{IDD}*, without and with control variables and the tone of earnings press releases. We define *CareerConcerns^{IDD}* as a dummy variable with value one if the state applies IDD, in year t and zero

¹¹ For a complete list of states that enforce the IDD, we refer to prior research (see, e.g., Klasa et al., 2018).

Table 9
Career concerns and the tone of earnings press releases — The influence of moderating factors.

Tone	Panel A – CEO-level			Panel B – Firm-level		
	Model(1)	Model(2)	Model(3)	Model(4)	Model(5)	Model(6)
Factor	<i>Tenure</i>	<i>Ability</i>	<i>Age</i>	<i>LowEntrench</i>	<i>AnalystCov</i>	<i>Ind Board</i>
(Intercept)	0.652*** (0.074)	0.176*** (0.067)	0.815*** (0.098)	0.396*** (0.061)	0.501*** (0.043)	0.614*** (0.076)
<i>CareerConcerns</i> × <i>Factor</i>	−0.011** (0.005)	−0.012*** (0.005)	−0.114** (0.054)	0.012** (0.005)	0.014*** (0.004)	0.060*** (0.013)
<i>Factor</i>	−0.023** (0.009)	−0.033*** (0.009)	−0.170** (0.066)	−0.039*** (0.009)	0.010 (0.011)	0.042* (0.023)
<i>CareerConcerns</i>	0.025*** (0.004)	0.027*** (0.003)	0.134** (0.054)	0.018*** (0.004)	0.014*** (0.003)	−0.038*** (0.013)
Δ	0.005 (0.003)	0.008*** (0.003)	0.007** (0.003)	0.026*** (0.003)	0.019*** (0.002)	0.007** (0.003)
<i>BTM</i>	−0.179*** (0.008)	−0.131*** (0.007)	−0.178*** (0.008)	−0.175*** (0.008)	−0.156*** (0.006)	−0.179*** (0.008)
<i>Size</i>	0.032*** (0.005)	0.061*** (0.004)	0.031*** (0.004)	0.028*** (0.003)	0.018*** (0.002)	0.030*** (0.004)
<i>ROA</i>	0.040*** (0.002)	0.021*** (0.001)	0.040*** (0.002)	0.019*** (0.001)	0.023*** (0.001)	0.040*** (0.002)
<i>Alpha</i>	−0.000 (0.000)	−0.001*** (0.000)	−0.000 (0.000)	−0.001*** (0.000)	−0.001*** (0.000)	−0.000 (0.000)
<i>SystematicRisk</i>	0.022* (0.012)	0.005 (0.008)	0.022* (0.012)	0.043*** (0.012)	0.021*** (0.007)	0.022* (0.012)
<i>CAR</i> [−62; −2]	−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)
$\sigma_{Forecast}$	−0.025*** (0.004)	−0.003* (0.002)	−0.025*** (0.004)	−0.004*** (0.001)	−0.005*** (0.001)	−0.025*** (0.004)
σ_{Profit}	−1.530*** (0.248)	−1.065*** (0.136)	−1.539*** (0.247)	−0.816*** (0.165)	−1.242*** (0.114)	−1.533*** (0.247)
<i>ForecastError</i>	0.086*** (0.009)	0.065*** (0.006)	0.086*** (0.009)	0.064*** (0.007)	0.043*** (0.004)	0.085*** (0.009)
<i>NOA</i>	−0.047*** (0.010)	−0.071*** (0.009)	−0.045*** (0.010)	0.013 (0.008)	−0.014* (0.008)	−0.046*** (0.010)
<i>TradingVolume</i>	−0.119*** (0.009)	−0.085*** (0.007)	−0.119*** (0.009)	−0.112*** (0.009)	−0.081*** (0.006)	−0.119*** (0.009)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.217	0.143	0.218	0.160	0.126	0.218
Adj. R ²	0.216	0.142	0.216	0.159	0.126	0.217
Num. obs.	23,189	30,836	23,192	27,841	51,360	23,192
VIF	1.683	1.691	2.287	1.741	2.162	2.184

Note: This table provides evidence on Hypothesis [Hypothesis 2](#) (Panel A) and Hypothesis [Hypothesis 3](#) (Panel B). Model (1) focuses on the impact of CEO tenure (*Tenure*), which is obtained from the RiskMetrics database. In Model (2), CEO ability (*Ability*) is measured from [Demerjian et al. \(2012\)](#). In Model (3), CEO age (*Age*) is taken from the RiskMetrics database. In Model (4), *LowEntrench* is measured by [Bebchuk et al. \(2009\)](#). In Model (5), analyst coverage is from the IBES database. In Model (6), board independence is obtained from RiskMetrics. For Models (1)–(5), we define *Factor* equal to one if the value of the underlying variable is above the median and zero otherwise. For Model (6), we define *Factor* equal to one if the proportion of the number of independent board members is higher than 50%. For *LowEntrench*, we define a dummy variable taking the value of 1 when the index is lower than three and zero otherwise. The control variables are the same as those included in [Table 5](#). All continuous variables are Winsorized at the 1% and 99% percentiles. The definitions of the variables are provided in [Table 1](#). Using Newey–West standard errors (reported in parentheses), the significance of the coefficients is tested. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. The highest variance inflation factor among all variables is reported under VIF. Goodness of fit is evaluated by R² and adj. R².

otherwise. Both models show that the impact of *CareerConcerns*^{IDD} on the tone is significant and positive. These results provide additional support for the theory that heightened career concerns incentivize managers to engage in tone inflation of earnings press releases. Model (2) incorporates the same control variables as under Eq. (3). We find similar coefficients in terms of our control variables. We again report a negative and significant effect for *BTM*, as well as *NegativeFE*. Moreover, *Size* and *ROA* are positively associated with the tone of earnings press releases. Similar to [Table 5](#), $\sigma_{Forecast}$ and σ_{Profit} are negatively associated with *Tone*.

4.4. Factors moderating the effect of noncompete enforceability on tone inflation

In the previous section, we establish the causal main effect that career concerns induce managers to manipulate the content of earnings

press releases to signal a more optimistic outlook. However, the impact of managers' concerns is likely to vary cross-sectionally with firm characteristics. In this section, we conduct five cross-sectional analyses that test whether this behavior varies across managers and across firms. In particular, we focus on the managers' (i) tenure, (ii) ability and (iii) age. We also investigate the influence of (iv) managerial entrenchment, (v) analyst following, and (vi) board independence. The results of Eq. (5) are reported in [Table 9](#).

4.4.1. The impact of CEO tenure, ability, and age on tone inflation

[Hypothesis 2](#) predicts that more capable and senior CEOs with a longer tenure should be less affected by noncompete enforceability because they are less susceptible to forced turnover than are other CEOs. Overall, our findings are consistent with this hypothesis. First, Model (1) of [Table 9](#) shows a significantly negative coefficient on the interaction term *CareerConcerns* × *Tenure* at the 5% confidence level.

Table 10

Career concerns, earnings management and the tone of earnings press releases.

Panel A - Career concerns and quartiles of accruals earnings management				
<i>Tone</i>	<i>AEM</i> ⁺ ≤ Q25 Model(1)	<i>AEM</i> ⁺ > Q25 <i>AEM</i> ⁺ ≤ median Model(2)	<i>AEM</i> ⁺ > median <i>AEM</i> ⁺ ≤ Q75 Model(3)	<i>AEM</i> ⁺ > Q75 Model(4)
<i>CareerConcerns</i>	0.017*** (0.006)	0.041*** (0.006)	0.025*** (0.006)	0.036*** (0.005)
Control Variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
R ²	0.154	0.120	0.127	0.129
Adj. R ²	0.152	0.117	0.124	0.126
Num. obs.	12,840	12,840	12,840	12,840
Panel B - Career concerns and quartiles of real earnings management				
<i>Tone</i>	<i>REM</i> ≤ Q25 Model(1)	<i>REM</i> > Q25 <i>REM</i> ≤ median Model(2)	<i>REM</i> > median <i>REM</i> ≤ Q75 Model(3)	<i>REM</i> > Q75 Model(4)
<i>CareerConcerns</i>	0.018*** (0.004)	0.031*** (0.004)	0.020*** (0.004)	0.025*** (0.003)
Control Variables	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Quarter fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
R ²	0.150	0.164	0.112	0.101
Adj. R ²	0.148	0.161	0.109	0.099
Num. obs.	12,840	12,840	12,840	12,840

Note: This table displays the results of the interaction effect between career concerns (*CareerConcerns*) and earnings management (*REM* and *AEM*) on the tone of earnings press releases. + indicates that unsigned discretionary accruals are used to define the earnings management quartile. The definitions of the variables are provided in Table 1. Newey–West standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided t-test. Goodness of fit is evaluated by R² and adj. R².

Tenure is defined as a dummy variable taking the value of one if the managerial tenure of the CEO is above the median of the sample in the quarter and zero otherwise. Second, we investigate the impact of managerial ability. We define *Ability* as a dummy variable taking the value of one if the managerial ability of CEO is above the median of the sample in a quarter and zero otherwise. The results in Model (2) confirm Hypothesis 2 and report a negative and significant coefficient for the interaction variable *CareerConcerns* × *Ability*. Third, we study the mitigating impact of the age of the CEO and define *Age* as a dummy variable taking the value of '1' if the managerial ability of CEO is above the median of the sample in a quarter and zero otherwise. As expected, Model (3) shows that the interaction term *CareerConcerns* × *Age* is negative and highly significant.

4.4.2. The impact of entrenchment, board independence and analyst coverage on tone inflation

Hypothesis 3 predicts that intensive monitoring in the firm likely magnifies the effect of career concerns because more closely monitored managers are under greater pressure to deliver earnings that meet expectations. In Panel B of Table 9, we first test the impact of CEO entrenchment. In Model (4), we find a positive and significant effect for the interaction variable *CareerConcerns* × *LowEntrenchment*. This indicates that on average, a CEO with little entrenchment in a state with a stricter noncompete enforcement is more prone to engage in tone inflation. In Model (5), we test the impact of analysts' coverage. Although we report an insignificant coefficient for *AnalystCov*, we find a positive and statistically significant coefficient for the interaction variable (*CareerConcerns* × *NOA*). In line with our expectations, we also find in Model (6) a significantly positive interaction effect between *CareerConcerns* and *IndBoard*. Taken together, these results are in line with Hypothesis 3 and indicate that closely monitored managers significantly increase their use of tone inflation in response to a stricter enforcement of noncompete provisions. Note that our variable *CareerConcerns* remains positive and highly significant for all three models in Panel B.

5. Tone management as an incremental tool for earnings management

As indicated by the correlation factors in Table 4, there indeed exists a positive and significant relationship between earnings management and tone, which indicates that tone and earnings management strategies are complementary. However, we need to ensure that tone manipulation is a separate effect from firms' upward earnings manipulation practices. As mentioned earlier, the prior literature (see, e.g., Chen et al., 2017) documents that managers' earnings management strategy is affected by career concerns. In addition, Huang et al. (2014) show that managers use both accruals-based earnings management and tone management to achieve their earnings goals. It could therefore be that the more optimistic narrative in the earnings press release is a consequence of the inflated earnings numbers, rather than the effect of managers' career concerns.

To ensure that tone inflation is an incremental disclosure strategy to the use of earnings management, we extend Eq. (5) by adding two proxies for earnings management (*EM*): (i) the absolute value of discretionary accruals as a proxy for accruals-based earnings management (*AEM*) (see, e.g., Prior et al., 2008) and (ii) the sum of abnormal cash flow from operations, abnormal discretionary expenses and abnormal production costs as a proxy for real earnings management (*REM*) (Roychowdhury, 2006). If tone inflation is solely driven by upward earnings management, then tone inflation should be concentrated only in the subsample of higher earnings management quartiles.

Panels A and B of Table 10 report the results partitioned on quartiles of signed abnormal accruals and real earnings manipulation, respectively. In contrast to the earnings management alternative view, we find that the relation between career concerns and tone inflation exists in both the positive and negative abnormal accruals subsamples. The coefficient estimates are statistically significant in all subsamples. A similar conclusion holds for the analysis based on real earnings management in

Panel B. We therefore conclude that the effect of managerial career concerns on the tone of earnings press releases appears to be a persistent and independent disclosure strategy from earnings management.

6. Conclusions

This paper investigates whether career concerns induce managers to strategically manipulate the content of corporate disclosures by inflating the tone of earnings press releases to positively influence how managerial performance is perceived by the labor market. We find that career concerns, measured by the enforcement of noncompete agreements, lead managers to manipulate the content of earnings press releases by inflating the tone of earnings press releases. This result cannot be explained by differences in past performance, information asymmetry, earnings management, industry or time fixed effects. Moreover, we exploit a quasi-natural experiment created by changes in noncompete laws for three states to derive causal inferences that career concerns influence managers' use of tone inflation. We shed further light on the underlying mechanisms by revealing more pronounced effects of career concerns on the use of tone inflation for (a) junior managers with a lower ability and shorter tenure, who are facing greater risks of forced turnover and for (b) managers at firms with more independent boards of directors, entrenched managers and analyst following, whose intensified monitoring exacerbates the pressure to achieve expectations. Taken together, our results support that career concerns significantly influence managers' reporting behavior of qualitative information.

Overall, our paper raises important ethical concerns with respect to the accuracy of corporate information. The prior research shows that investors strongly react to the information contained in the narrative sections of corporate disclosures (Muslu et al., 2019; Patelli & Pedrini, 2013). However, with the exception of papers such as Arslan-Ayaydin et al. (2016), Huang et al. (2014), and Marquez-Illescas et al. (2019), the literature on the incentives that lead managers to misreport qualitative information remains limited. We contribute to this literature by providing evidence that career concerns lead to a positive bias in the content of earnings announcements, and hence, market agents need to consider this factor to enhance their capacity to interpret and process the disclosed information disclosed in earnings announcements. In particular, our study extends the findings of Chen et al. (2017), who find that managers with career concerns tend to manipulate earnings numbers to convey a positive picture of their performance. We establish that regardless of managers' propensity to manipulate earnings numbers, they strategically craft the content of the narrative sections of corporate disclosures when facing career concerns.

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