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Tone Management and Litigation Concerns in CEOs' Early Years

Although over-optimistic disclosures have been found to increase the likelihood of shareholder litigation, this finding has been largely ignored in the context of newly appointed CEOs' disclosure choices. Addressing this gap, our study examines the variation in CEOs' tone management strategies in their early years of tenure, here as stimulated by their *ex ante* litigation concerns (in addition to the well-documented career concerns). Based on a textual analysis of the 10-K filings of US nonfinancial firms during 1993–2022, we use the abnormal tone of earnings-related disclosures to measure strategic tone—a linguistic tool used by managers to influence the perceptions of capital market participants. We find that high litigation concerns are, on average, associated with a greater downward tone management (or over-pessimism) in CEOs' early years, even after controlling for the 'big bath' phenomenon, as well as a tendency to manage earnings upward on account of career concerns. Furthermore, this over-pessimism is found to be uninformative about future earnings or operating cash flow. This suggests that managers employ this over-pessimistic strategy in response to their high litigation risk exposure rather than to inform market participants about their firms' prospects. Finally, we document that a rich firm information environment—which renders low information asymmetry between firms and outside stakeholders (thus attenuating CEOs' information advantage)—dampens new CEOs' tendency to adopt this particular disclosure strategy.

Key words: CEO tenure; Information environment; Litigation concerns; Qualitative disclosures; Tone management.

In the early years of their tenure, CEOs face the critical challenge of managing stakeholders' expectations and building confidence among all parties by reaching their initial performance targets (Vancil, 1987). Also, the market is likely uncertain about their ability in these early years (Ali and Zhang, 2015; Gibbons and Murphy, 1992).[1] These career concerns prompt new CEOs to adopt an

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[1] It is rare for CEOs to leave a firm and join another company (Ali and Zhang, 2015): CEO exits to take a CEO position in another firm are 2.2% (Gibbons and Murphy, 1992) and 3.2% (Brickley *et al*., 1999). Thus, most CEOs are unlikely to have any past records of their performance as CEO. Also, even if CEOs were promoted from within their firms, the market is still likely to be uncertain about their ability because the portfolio of skills required to be successful in that role is different from that required for a lower-level position (Ali and Zhang, 2015; Gibbons and Murphy, 1992).

optimistic disclosure *tone* to manage perceptions and build their reputation (Bochkay *et al*., 2019; Garcia Osma *et al*., 2018).

However, optimistic language has been shown to be associated with greater litigation risk, and such language has been the alleged subject of shareholder lawsuits in the past because of losses resulting from investors' over-optimistic expectations (Rogers *et al*., 2011).[2] We contend that this risk should be particularly relevant for newly appointed CEOs because they are subject to excessive market scrutiny in their early years (Ali and Zhang, 2015) and, as a result, a litigation filing announcement can trigger enormous damage to their reputation. Moreover, studies confirm that early tenure CEOs exhibit greater risk aversion (Chen and Zheng, 2014). This suggests that new CEOs who are aware of their potential litigation risk (i.e., *ex ante* litigation risk) will be more likely to adjust their current narrative disclosures strategy accordingly. In this context, we argue that a downward adjustment of disclosure tone is a straightforward means to reduce the likelihood of litigious problems related to firm disclosures (Li, 2010, Rogers *et al*., 2011).[3] The potential implications of *ex ante* litigation risk for new CEOs' tone strategy have, however, been largely overlooked in prior studies, which have mainly sought to compare the disclosure behaviour of sued versus non-sued corporations—namely, an *ex post* litigation risk (see, e.g., Rogers and Van Buskirk, 2009). This leads to our first research question: Are litigation concerns in the early years of CEOs' tenures associated with their disclosure choices pertaining to tone management?

We examine this research question via textual analysis of earnings-related[4] narrative disclosures by using a sample of 10-K filings[5] for the period 1993–2022. In line with Huang *et al*. (2014), we use abnormal tone—the residual obtained from a regression of tone on its normal determinants—as a measure of tone management. Also, following Ali and Zhang (2015), we take the first three years of a CEO's tenure to define early years and use industry membership (as determined by the relevant SIC codes) as our measure of *ex ante* litigation risk

[2] For example, in *Hack et al. v. Metris Companies, Inc. et al*. (class action complaint, 2002, p. 43), the plaintiffs alleged that Metris's CEO 'offered a hopelessly positive spin on his Company's capital plan'. In the *VoiceFlash Networks, Inc. Securities Litigation* (2005), it was alleged that 'The news that VoiceFlash would liquidate came on the heels of numerous highly optimistic announcements by the defendants touting the success of the Company's business condition and financial performance' (Rogers *et al*., 2011).

[3] Throughout this paper, we use litigation concerns, litigation pressures, and litigation risk (all pointing toward *ex ante* litigation risk) interchangeably.

[4] It should be noted that narrative disclosures incorporate a myriad of information, both related and unrelated to earnings. Prior studies, however, indicate the usefulness of earnings-related narrative disclosures in increasing market participants' ability to forecast future earnings changes (see, e.g., Cazier and Pfeiffer, 2017; Hussainey and Walker, 2009;Mouselli *et al*., 2012). We, therefore, exclusively focus on earnings-related disclosures in 10-K filings.

[5] Our focus on 10-K filings is motivated by prior research suggesting that these filings are an important source of information (Brown and Tucker, 2011; Leder, 2003; Lehavy *et al*., 2011; Merkley, 2014; Previts *et al*., 1994) and that the narrative disclosures in them contain information incremental to that in other firm disclosures (Davis and Tama-Sweet, 2012).

(which represents a higher likelihood of facing future legal plaintiffs). Our empirical results reveal that, when litigation concerns are high, new CEOs' tone management strategy is different from when these concerns are low. Specifically, we find that high (*ex ante*) litigation risk in CEOs' early years is associated with greater downward tone management (or over-pessimism). It is worth noting that this finding is attained after controlling for the 'big bath' phenomenon (documented in prior studies, such as, Murphy and Zimmerman (1993) and Pourciau (1993)), as well as CEOs' tendency to manage earnings upward (documented in Ali and Zhang (2015)). On the contrary, we observe that in the situation characterised by low *ex ante* litigation risk, the fact of being in the early years of tenure is not a determinant of the CEO's narrative disclosures strategy. This finding corroborates the argument that litigation concerns are especially pressing in the early years of CEOs' tenures, since in this period the market is still assessing their abilities.

Given that (new) CEOs' choices of disclosure strategies could be informative or uninformative about their firms' prospects (Huang *et al.*, 2014), a natural question then arises: Is the greater downward tone management, amid high litigation concerns in CEOs' early years, informative about future firm prospects? Hence, as a next step, we examine the relationship between this over-pessimistic strategy and the future financial performance of the firm (either future earnings or operating cash flow). Interestingly, we find that these over-pessimistic 10-K disclosures do not explain future performance, thereby implying the uninformativeness of new CEOs' tone strategy.

The inability of new CEOs' over-pessimistic disclosure strategy to explain firm future financial performance suggests that these CEOs tend to exploit the information asymmetry between them and external market participants to avoid any potential lawsuit in the future, rather than to inform them about their firms' prospect. If so, given the widely documented role of firms' information environment in reducing the information asymmetry between them and outsiders (Bushman and Smith, 2001; Healy and Palepu, 2001; Hu *et al.*, 2014), we expect a rich environment to attenuate new CEOs' expected benefits from their uninformative disclosure strategy. This gives rise to our third and final research question: Is the richness of the firm information environment associated with CEOs' uninformative disclosure strategy in their early years of tenure? Consistent with our expectations, our findings provide weaker evidence of new CEOs' over-pessimistic disclosure strategy in a rich information environment (characterised by firm size, high analyst coverage, and low forecast error).

It is noteworthy that all our findings are robust to several tests, including endogeneity, the use of alternate definitions for CEOs' early years and alternative abnormal tone measures.

The contributions of our study are twofold. First, we contribute to the streams of literature on narrative disclosures and CEO behaviour by adding an important new dimension—namely, *ex ante* litigation concerns (as opposed to *ex post*, which has been the focus in the literature)—in the context of new CEOs' disclosure strategies. Previous studies in this context, regardless of the focus on quantitative (e.g., Ali and Zhang, 2015) or qualitative disclosure choices (e.g., Bochkay

et al., 2019; Garcia Osma *et al.*, 2018)), have solely relied on the 'career concerns' perspective to explain their documented presence of over-optimistic disclosures in CEOs' early years. However, these studies have overlooked that optimistic language in turn increases the likelihood of shareholder litigation (Rogers *et al.*, 2011)—a research gap that our study directly addresses. In fact, we have provided evidence of an over-pessimistic disclosure strategy when *ex ante* litigation concerns are high. In addition, we have shown that these litigation concerns are not equally pressing throughout CEOs' tenures and, instead, have greater significance for their tone strategy adopted in the early years. Hence, by accounting for litigation concerns, our study portrays a more complete picture of new CEOs' disclosure strategies to manage outsiders' perceptions.

Second, by bringing the element of information environment richness to the context of new CEOs' tone strategies, we contribute to a large stream of literature on the relation between information environment richness and firm reporting/disclosure behaviour. Although the literature mainly focuses on this relationship in the context of *quantitative* disclosure choices, such as earnings management (Irani and Oesch, 2016; Yu, 2008), income smoothing strategy (Sun, 2011), and accounting conservatism (Sun and Liu, 2011), the present paper is the first to study whether information environment richness has implications for a *qualitative* disclosure choice (i.e., tone), particularly in an important period in CEOs' tenure (i.e., their early years).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

CEOs' Early Years and Career Concerns

CEOs' career concerns stem from the fact that the market is likely to be more uncertain about their ability in the early years of their tenures (Ali and Zhang, 2015; Gibbons and Murphy, 1992), and the way the market perceives their abilities is valuable because it guarantees several long-term benefits to them, such as higher compensation, reappointments and so forth (Fama, 1980; Hermalin and Weisbach, 1998).

Stakeholders' information disadvantage, emanating from their uncertainty about new CEOs' abilities, results in greater scrutiny and assessment of CEOs' decisions in their early tenure years. It is, for instance, documented that one-third of new CEOs are dismissed within the first three years of their tenures (Coyne and Rao, 2005). Also, it is argued that, when a new CEO joins a company, boards are not fully aware of their ability and, therefore, need to gauge their type (Garcia Osma *et al.*, 2018). Moreover, there is evidence suggesting that markets' beliefs about new CEOs' ability are updated based on firm performance in the early tenure years (Pan *et al.*, 2015). Hence, the above arguments suggest that new CEOs have strong incentives to adopt suitable measures in their attempts to influence markets' assessment and build their reputation. One such measure that has been widely researched pertains to CEOs' discretionary disclosure choices in their early tenure years, which is also the focus of the current study.

Discretionary Disclosure Choices in CEOs' Early Years

The literature has provided evidence of new CEOs using both quantitative and qualitative disclosures to influence markets' assessment of their abilities. Regarding quantitative disclosure choices, Elliott and Shaw (1988) find that new executives make large discretionary write-offs in their first year and seek to blame prior managers for the resulting poor performance. Going further and including other years of the CEOs' tenure, Ali and Zhang (2015) show that CEOs attempt to favourably influence the market's perception of their abilities through greater earnings overstatement in the early years than in the later years of their tenures.

Regarding qualitative disclosure choices, the *tone* of narrative disclosures is the most widely researched textual attribute in this context.[6] Vancil (1987) argues that, in the early years of their tenures, CEOs adopt a less optimistic tone as a result of their initial performance targets, which tend to be more realistic in an attempt to build confidence among stakeholders. Another incentive that impacts the disclosure tone adopted by new CEOs relates to the 'big bath' phenomenon, whereby CEOs attribute poor firm performance to their predecessors (Murphy and Zimmerman, 1993; Pourciau, 1993), resulting in a lower optimistic tone (Garcia Osma *et al*., 2018). Finally, to positively influence outsiders' perceptions of their abilities, CEOs adopt a relatively more optimistic tone in their early years for disclosures pertaining to conference calls (Bochkay *et al*., 2019).

Despite the overwhelming evidence in support of new CEOs' tendency for an optimistic disclosure tone in their early years, they may adopt a different tone management strategy when faced with litigation concerns resulting from possible investors' losses in view of their over-optimistic expectations driven by optimistic disclosures.

Litigation Concerns in CEOs' Early Years and Tone Management Strategy

New CEOs' tone management amid high litigation concerns Under Rule 10b-5 of the Securities Exchange Act of 1934, shareholder litigation limits managers' opportunistic disclosures.[7] Under this rule, investors can initiate legal action after being harmed by a defendant's misrepresentations (Rogers *et al*., 2011).

Optimistic disclosures increase the likelihood of shareholder litigation (Rogers *et al*., 2011) because investors may allege that their prior expectations regarding firm value were too high and that those over-optimistic expectations were based on the firm's disclosures. Furthermore, if stakeholders recognise that they have

[6] This is for two reasons: first, tone has been found to significantly influence the perceptions of investors and analysts (Henry, 2008; Huang *et al*., 2014; Lang and Lundholm, 2000; Loughran and McDonald, 2011). Second, unlike financial statements, narrative disclosures are marked by the absence of any concrete regulation regarding their exact format or content, thereby making them amenable to CEO (or manager) discretion regarding both the extent of detail provided and language (or rhetoric) used (Davis and Tama-Sweet, 2012).

[7] Rule 10b-5 makes it unlawful to 'make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made … not misleading'.

been misled by the firm's disclosures, the firm's (and consequently, the CEO's) image and reputation can suffer severe damage (Rahman, 2012).

Although CEOs are likely concerned about their litigation risk exposure throughout their tenures, these concerns may be especially pressing in the early years of their tenures when the market is still assessing their abilities. This is because litigation filing announcements could trigger an enormous loss of wealth for the shareholders of the sued companies, as prior studies have documented (Bhagat *et al.*, 1998; Bhattacharya *et al.*, 2007; Gande and Lewis, 2009; Wier, 1983).[8] Moreover, as gleaned from the survey evidence in Graham *et al.* (2005), these senior executives are also concerned about the press coverage associated with even the potentially frivolous lawsuits because it can still harm their reputation. Because of these adverse consequences of a potential lawsuit or litigation filing, CEOs risk being labelled as 'low-ability' managers in the early years of their tenures and their entire careers could suffer as a result. Therefore, it is imperative for new CEOs to minimise their litigation risk exposure the using tools at their disposal. This expectation is even more reinforced given the findings confirming that CEOs exhibit greater risk aversion in the early years of their tenures (Chen and Zheng, 2014).

Prior studies have shown that managers attempt to reduce expected (personal) litigation costs by altering their corporate disclosure choices and accounting decisions (Li, 2010; Nelson and Pritchard, 2007). For instance, Levy *et al.* (2018) show that senior executives, such as CFOs, increase the negative tone of earnings announcement conference calls as a response to an adverse shock to their personal litigation risks. In the context of new CEOs, we conjecture that a straightforward means of reducing litigation risk is the downward adjustment of disclosure tone (Li, 2010; Rogers *et al.*, 2011), more than what is congruent with current and future firm fundamentals. Although tone is not the sole determinant of litigation risk, it is both associated with litigation risk *and* under a CEO's discretion. This leads to our first hypothesis:

H1: High litigation concerns in the early years of CEOs' tenures are associated with greater downward tone management in 10-K disclosures.[9]

Informativeness of this tone management strategy CEOs' tone management strategies, as hypothesised above, may or may not be executed with the intention to inform capital market participants about firms' prospects. To be informative, the abnormal tone adopted in 10-K disclosures is expected to convey incremental managerial private information, which cannot be communicated through the

[8] A decline in market valuation occurs on account of significant legal costs that need to be incurred (Haslem, 2005; Romano, 1991), the diversion of employee attention and time (Black *et al.*, 2005; Johnson *et al.*, 1999) and the risk of the financial liabilities in the event of a loss (Hertzel and Smith, 1993).

[9] The present study does not propose any causal relationship. Instead, we focus on the association of *ex ante* litigation risk and the tone new CEOs adopt in their 10-K disclosures in their early tenure years.

accounting numbers reported in financial reports because of GAAP constraints (Huang *et al.*, 2014). On the other hand, uninformative disclosures could be primarily driven by CEOs' concerns about the cost of disclosing proprietary information that could be used by their competitors (Imhof *et al.*, 2022) and/or potential judicial problems in case the disclosed information does not come true (Li, 2010). The latter concern is specifically binding for new CEOs, particularly those facing high litigation concerns (our context), because the market is still uncertain about their ability, thereby rendering them under serious scrutiny and attention.

If the greater downward tone management strategy of new CEOs in firms facing greater *ex ante* litigation risk (as formulated in H1) is *exclusively* to mitigate litigation risk, rather than to inform outside stakeholders about their firms' prospects, an abnormal tone should not explain future earnings. This is particularly plausible because the attributes of firms' narrative disclosures (such as tone) are unaudited and widely used by capital market participants, thus providing CEOs with an ideal tool for perception management (Clatworthy and Jones, 2003). Thus, we formulate our Hypothesis 2 as follows:

H2: When litigation concerns are high, a new CEO's greater downward tone management strategy does not explain future financial performance.

The uninformative disclosure strategy, as formulated in H2, implies that CEOs opportunistically employ information asymmetry[10] to make disclosures with an aim to alleviate their litigation concerns, rather than inform investors about their firms' prospects (Kim *et al.*, 2019).

Richness of firm information environment and tone management strategy A rich firm information environment facilitates the flow of accounting information from the firm to outsiders (Hu *et al.*, 2014), thereby resulting in greater availability of high-quality information that helps investors decipher managerial decisions (Kelly and Ljungqvist, 2012; Kim *et al.*, 2019). The richness of the information environment, therefore, attenuates information asymmetry, ultimately seeking to limit CEOs' information advantage (Bushman and Smith, 2001; Gong *et al.*, 2013; Healy and Palepu, 2001).

The accounting literature has long recognised security analysts as the major information intermediaries in capital markets, pointing to their primary role in enriching firms' information environments (Frankel and Li, 2004; Kim *et al.*, 2019; Upadhyay, 2014; Wiedman, 1996; Yu, 2008). Analysts specialise in gathering (from both public and private channels), processing, interpreting, and transforming information into an understandable form before disseminating it to investors. This information is often beyond what is readily available to investors via corporate disclosures. This is how analysts reduce information

[10] This information asymmetry arises because of CEOs' superior private information vis-à-vis investors regarding their firms' operations and disclosure strategies (Gong *et al.*, 2013).

asymmetry between firms and investors and thereby impede managerial opportunism (Kim *et al*., 2019).

In view of the above, low (high) analyst coverage and/or high (low) analyst uncertainty—contributing to a poor (rich) information environment—would provide managers with opportunities to make disclosure-related decisions that come at investors' disadvantage, such as greater earnings management (Irani and Oesch, 2016; Yu, 2008); less informative income smoothing strategy (Sun, 2011); and lower accounting conservatism (Sun and Liu, 2011). Despite these studies advancing our knowledge of the effect of the information environment on corporate *quantitative* disclosure decisions, the literature has yet to explore whether the information environment has implications for discretionary *qualitative* disclosure choices (such as tone), particularly in the case of new CEOs facing high litigation concerns (the research gap we address).

In the context of new CEOs facing high *ex ante* litigation risks, the effectiveness of their disclosure strategy should be associated with the richness of the firm's information environment. On the one hand, we contend that the 'facilitating role' of a rich information environment (Hu *et al*., 2014) should serve new CEOs in their efforts to share with market participants relevant information that is aligned with their tone strategies (in our case, greater downward tone management), thereby strengthening their tendency to execute their disclosure strategies. On the other hand, we conjecture a rich information environment results in lower benefits that CEOs expect to obtain from their uninformative tone strategy, thus mitigating their tendency to effectuate their disclosure strategy. Therefore, we formulate our third hypothesis as follows:

H3a: A richer information environment strengthens new CEOs' tendencies to execute their *informative* tone management strategy amid high litigation concerns.

H3b: A richer information environment mitigates new CEOs' tendencies to execute their *uninformative* tone management strategy amid high litigation concerns.

RESEARCH DESIGN

Sample and Data

For the years 1993–2022, we obtain the CEO sample and related data from ExecuComp, accounting and segments data from COMPUSTAT, stock return data from CRSP, and analyst data from I/B/E/S. Firms in the finance, insurance, and real estate sectors (SIC codes between 6000 and 6999) are removed.

We collect textual data of the firms in the COMPUSTAT universe through the website of the SEC. That is, by using COMPUSTAT's Central Index Key (CIK),

the SEC EDGAR tool is able to provide the relevant firm-level disclosure data. All 10-Ks for the 1993–2022 period were downloaded and, following Loughran and McDonald (2011), we remove 10-Ks that contain less than 2,000 words and only include one filing per firm per year by removing the filings that were filed within 180 days from a prior filing. If there were multiple 10-Ks filed within a year, we consider only the first filing. The algorithm for parsing the 10-K documents is outlined in Appendix B. After focusing on earnings-related sentences contained in these 10-K files (see the subsection 'Tone of the 10-K document' for more discussions) and upon merging with the CEO data from ExecuComp and other necessary data from CRSP and I/B/E/S, our final sample comprises 42,877 firm-year observations, representing 9,219 unique CEOs and 5,846 unique firms.

Variable Measurements

In this section, we briefly introduce the variables we have used to test our hypotheses, while the definitions of the other variables used in our empirical tests are outlined in Appendix A.

Tone of the 10-K document We define tone *(TONE_EARN)* as the difference in the frequency of positive versus negative words pertaining to earnings-related disclosures[11] contained in firms' 10-K filings divided by the total number of words in these disclosures. We primarily focus on earnings-related 10-K disclosures because the usefulness of these disclosures in increasing market participants' ability to forecast future earnings changes has been previously documented (see, e.g., Cazier and Pfeiffer, 2017; Hussainey and Walker, 2009; Mouselli *et al*., 2012).

To calculate the tone measure, first, and following prior studies, we employ the *bag of words* approach to represent the 10-K text numerically (Loughran and McDonald, 2011). Under this approach, each document is represented by the words it contains, ignoring any punctuation and ordering. Every word is identified and counted by the number of times it appears in the document. Next, Python scripts are used to search for positive and negative words in the entire document for each 10-K filing.[12] To identify positive and negative words, we refer to the financial sentiment dictionary developed by Loughran and McDonald (2011). This domain-specific dictionary, which comprises 354 positive and 2,329 negative words, was created for analysing financial communications and is now widely used by business researchers to assess the linguistic tone of a document (amongst others,

[11] Sentences are considered earnings-related if they contain one of the following words: Earning, earnings, EPS, income, loss, losses, profit, profits, sales, revenue, revenues, expense, expenses, EBT, EBIT, and EBITDA.

[12] Some prior studies restrict attention to the tone of only the MD&A section in the 10-K document. However, Loughran and McDonald (2011) empirically show that the MD&A section does not contain richer tonal content. Therefore, we focus on the entire 10-K document and not any one specific section. Other studies that examine 10-K disclosure tone include Li (2008), Lehavy *et al.* (2011), Bodnaruk *et al.* (2015), and Campbell *et al.* (2011).

Bodnaruk *et al.*, 2015; Huang *et al.*, 2014; Kearney and Liu, 2014; Law and Mills, 2015). As a further refinement, we reduce each word to its 'stem' so that different forms of the same word are considered as a single word (e.g., the (positive) words 'improve', 'improved', 'improving' and 'improvement' are stemmed to 'improve').

Finally, we adopt a term-weighting scheme from the literature to appropriately weight our *TONE_EARN* measure. Because a weighting scheme can help to attenuate the impact of high-frequency words, thereby allowing less frequently used words to have a greater impact (Jurafsky and Martin, 2009; Loughran and McDonald, 2011), prior studies (such as, Loughran and McDonald, 2011)) have argued for and empirically shown that a weighted word count–based measure of tone is superior to an unweighted one. The following term-weighting scheme is used:[13]

$$w_{i,j,t} = \begin{cases} \dfrac{\left(1+\log\left(tf_{i,j,t}\right)\right)}{\left(1+\log\left(a_{j,t}\right)\right)} * \log\left(\dfrac{N_t}{df_{i,t}}\right), & \text{if } tf_{i,j} \geq 1 \\ 0, & \text{Otherwise} \end{cases}$$

where $a_{j,t}$ denotes the average word count of documents in year t, $tf_{i,j,t}$ is the raw count of the i^{th} word in the j^{th} document in year t, $df_{i,t}$ represents the number of documents containing at least one occurrence of the i^{th} word in year t and N_t is the total number of 10-K documents in year t.

Abnormal tone (the expected tone model) The mere occurrence of positive (or negative) words in firm narratives does not necessarily indicate tone management because their presence has been found to correlate positively with firm performance (Henry, 2008). Only when firms adopt a tone in their narrative disclosures that is incongruent with the underlying quantitative fundamentals does it constitute tone management. Thus, tone has a normal component (reflecting a neutral tone commensurate with current available information about firm fundamentals) and an abnormal component (discretionary component capturing managers' strategic choice of tone). In research, it is vital to distinguish between these abnormal and normal components of tone to avoid making any erroneous conclusions (Rogers *et al.*, 2011).

To compute abnormal tone, we first run annual cross-sectional regressions of tone (*TONE_EARN*) on its determinants, as suggested in Li (2010) and first applied in the tone management context by Huang *et al.* (2014). The determinants include measures for current firm fundamentals (*EARN*, *RET_ANNUAL* and *SIZE*), growth opportunities (*BTM*), firm's business and operating risk environment (*STD_RET* and

[13] The weighting scheme is modified to additionally adjust for document length (similar to Loughran and McDonald, 2011) and account for the variation in length over time because the 10-K has become significantly lengthier over time and it is more likely for a word appearing in 1993 to have a different impact than a word appearing in 2022 (our sample period is from 1993–2022).

STD_EARN), operating complexity (*BUS_SEG* and *GEOG_SEG*), life cycle stage of the firm (*AGE*), firm earnings performance benchmarks (*LOSS*, $\Delta EARN$ and *AFE*), and expected future firm performance (*AF*). All variable definitions are outlined in Appendix A. The expected tone model (or the tone determination model) is as follows:

$$\begin{aligned} TONE\_EARN_{j,t} = {} & \alpha_0 + \alpha_1 EARN_{j,t} + \alpha_2 RET\_ANNUAL_{j,t} + \alpha_3 SIZE_{j,t} + \alpha_4 BTM_{j,t} \\ & + \alpha_5 STD\_RET_{j,t} + \alpha_6 STD\_EARN_{j,t} + \alpha_7 ln\, BUS\_SEG_{j,t} \\ & + \alpha_8 lnGEOG\_SEG_{j,t} + \alpha_9 AGE_{j,t} + \alpha_{10} LOSS_{j,t} + \alpha_{11} \Delta EARN_{j,t} \\ & + \alpha_{12} AFE_{j,t} + \alpha_{13} AF_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{1}$$

The abnormal tone (*ABTONE_EARN*) is the residual term from the estimation of equation (1). Following Huang *et al.* (2014), we exclude those variables related to managerial discretionary behaviour (such as seasoned equity offering, special items, and mergers and acquisition) from the above model so that the residual term as a measure of abnormal tone can reflect these strategic incentives.

Early years of the CEOs' tenures To measure the CEOs' early tenure years, we follow Ali and Zhang (2015) and create an indicator variable (denoted by *EARLY*) that is coded 1 for firm-years corresponding to the first three years of the CEOs' tenured and 0 otherwise. That is, the CEO turnover year (or CEO change year) and the two years following it constitute the early years. Although the three-year cutoff seems arbitrary, we later justify it by estimating tone management for each of the first five years of the CEOs' tenures[14] (see Table 7).

High litigation concerns Following Ali and Zhang (2015), we define our measure of *ex ante* litigation risk based on the list of industries with a higher risk of lawsuits using relevant SIC codes (the relevant industry titles and SIC codes are outlined in Appendix B).

Summary Statistics

To deal with outliers, each year, we winsorise all continuous variables at the 1% and 99% levels. As observed in Panel A of Table 1, the mean (median) value of *TONE_EARN* equals –0.936% (–1.497%), indicating that the tone of earnings-related disclosures in the 10-K is generally pessimistic. This is consistent with Loughran and McDonald (2011), who report higher mean negative words than

[14] As a further robustness check, we also use two years and four years as cut-offs to measure the CEOs' early tenure years and obtain similar findings. The untabulated results are not materially different.

TABLE 1

DESCRIPTIVE STATISTICS

Panel A: Summary statistics

VARIABLES	Mean	SD	P25	Median	P75
TONE_EARN (%)	–0.9360	0.8480	–1.4970	–1.4970	–0.4040
ABTONE_EARN (%)	0.0015	0.5440	–0.2880	–0.2880	0.3110
CEO_ABILITY	0.0036	0.1370	–0.0807	–0.0807	0.0480
EARLY	0.1610	0.3680	0	0	0
HIGHLITIGATION	0.3630	0.4810	0	0	1
NOA	0.8833	0.3177	0.7257	0.9059	1.0224
DA	0.0454	0.1330	–0.0225	–0.0225	0.111
CEO_OPTIMISM	0.2800	0.4490	0	0	1
BIG_BATH	0.3180	0.4660	0	0	1
EARN	0.0139	0.1660	–0.0118	–0.0118	0.0933
CFO	0.0889	0.1430	0.0484	0.0484	0.1570
LOSS	0.2800	0.4490	0	0	1
SIZE	6.6750	1.8230	5.3800	5.3800	7.8400
BTM	1.0070	0.0302	1	1	1.000
RET_ANNUAL	0.1240	0.6290	–0.2510	–0.2510	0.3340
STD_EARN	0.1170	0.222	0.0238	0.0238	0.1140
STD_RET	0.1390	0.0865	0.0808	0.0808	0.1700
AGE	2.6590	0.8590	2.0380	2.0380	3.2750
BUS_SEG	0.9990	0.4100	0.6930	0.6930	1
GEOG_SEG	1.0730	0.5050	1	1	1.3860
ANALYST_BEFORE	1.9840	0.7280	1.3860	1.3860	2.5650
Abs_AFE	0.0212	0.0744	0.0005	0.0005	0.0077

Panel B: Correlation matrix

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	ABTONE_EARN	1.000										
(2)	CEO_ABILITY	0.009*	1.000									
(3)	EARLY	–0.032***	0.020***	1.000								
(4)	HIGHLITIGATION	–0.018***	0.198***	–0.023***	1.000							
(5)	NOA	–0.005	0.193***	0.122***	–0.081***	1.000						
(6)	DA	0.003	0.042***	0.000	0.003	0.035***	1.000					
(7)	CEO_OPTIMISM	0.031***	0.071***	–0.010*	–0.008	0.088***	0.045***	1.000				
(8)	BIG_BATH	–0.060***	–0.019***	0.056***	0.056***	–0.002	–0.157***	–0.058***	1.000			
(9)	EARN	–0.002	0.165***	0.070***	–0.143***	0.091***	0.292***	0.221***	–0.245***	1.000		

(Continues)

TABLE 1

CONTINUED

Panel B: Correlation matrix

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(10)	CFO	0.006	0.163***	0.064***	–0.121***	0.066***	–0.081***	0.194***	–0.090***	0.739***	1.000	
(11)	LOSS	–0.001	–0.124***	–0.063***	0.143***	–0.118***	–0.206***	–0.221***	0.316***	–0.685***	–0.473***	1.000
(12)	SIZE	0.000	0.230***	0.211***	–0.058***	0.599***	0.079***	0.361***	–0.044***	0.336***	0.290***	–0.351***
(13)	BTM	0.002	–0.032***	0.013**	–0.074***	0.075***	0.005	–0.004	–0.008	0.001	0.005	–0.006
(14)	RET_ANNUAL	0.001	0.039***	0.001	0.021***	–0.024***	0.059***	0.017***	–0.092***	0.109***	0.101***	–0.108***
(15)	STD_RET	–0.001	–0.045***	–0.078***	0.159***	–0.190***	–0.077***	–0.162***	0.140***	–0.365***	–0.252***	0.389***
(16)	STD_EARN	0.000	0.045***	–0.083***	0.188***	–0.113***	–0.064***	–0.128***	0.090***	–0.397***	–0.273***	0.302***
(17)	AGE	0.011**	0.019***	0.196***	–0.173***	0.336***	0.063***	0.171***	–0.011**	0.205***	0.115***	–0.216***
(18)	BUS_SEG	–0.001	–0.054***	0.029***	–0.087***	0.067***	0.016***	0.006	0.011**	0.063***	0.038***	–0.075***
(19)	GEOG_SEG	–0.006	0.012**	0.074***	–0.022***	0.141***	0.051***	0.066***	0.072***	0.092***	0.068***	–0.066***
(20)	ANALYST_BEFORE	–0.029***	0.202***	0.152***	0.037***	0.433***	–0.008	0.278***	–0.007	0.197***	0.198***	–0.199***
(21)	Abs_AFE	–0.009*	–0.075***	–0.053***	0.017***	–0.064***	–0.087***	–0.118***	0.100***	–0.323***	–0.228***	0.302***

	Variables	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(12)	SIZE	1.000									
(13)	BTM	0.070***	1.000								
(14)	RET_ANNUAL	0.116***	–0.012**	1.000							
(15)	STD_RET	–0.374***	–0.013**	0.092***	1.000						
(16)	STD_EARN	–0.214***	–0.033***	0.014***	0.336***	1.000					
(17)	AGE	0.417***	0.065***	–0.001	–0.302***	–0.306***	1.000				
(18)	BUS_SEG	0.073***	0.013**	–0.005	–0.066***	–0.086***	0.152***	1.000			
(19)	GEOG_SEG	0.193***	0.003	–0.005	–0.083***	–0.093***	0.179***	0.152***	1.000		
(20)	ANALYST_BEFORE	0.763***	0.036***	–0.036***	–0.237***	–0.127***	0.206***	0.006	0.114***	1.000	
(21)	Abs_AFE	–0.266***	–0.001	–0.063***	0.233***	0.154***	–0.102***	–0.042***	–0.055***	–0.178***	1.000

Panel A provides summary statistics for all the variables with non-missing firm-year observations from 1993–2022. All variable definitions are outlined in Appendix A.

Panel B provides pairwise (Pearson) correlations between the variables with non-missing firm-year observations from 1993-2022. All variable definitions are outlined in Appendix A. ***, **, * represents statistical significance at the 1%, 5% and 10% levels.

positive words in the 10-K filings. In our final sample, CEOs have an average tenure of about 8.08 years (median 5.85), which is comparable to the statistics reported in prior studies.[15] Here, 16% of the firm-year observations correspond to the early years of CEOs' tenures. Also, 36% of the firm-year observations correspond to firms belonging to high-litigation industries. Panel B reports pairwise Pearson correlations.

Empirical Models

To examine the relationship between litigation concerns and CEOs' tone management strategies in the early years of their tenures (i.e., testing H1), we estimate the following model equation:

$$\begin{aligned} ABTONE\_EARN_{j,t} = {} & \alpha_0 + \alpha_1 EARLY_{j,t} + \alpha_2 EARLY \times HIGHLITIGATION_{j,t} \\ & + \alpha_3 EARLY \times BIG\_BATH_{j,t} + \alpha_4 HIGHLITIGATION_{j,t} \\ & + \alpha_5 BIG\_BATH_{j,t} + \alpha_6 NOA_{j,t} + \alpha_7 CEO\_OPTIMISM_{j,t} \\ & + \alpha_8 DA_{j,t} + \varepsilon_{j,t} \end{aligned} \tag{2}$$

All variable definitions are outlined in Appendix A. Equation (2) also includes year fixed effects.[16] Standard errors are clustered at the firm level to control for cross-sectional correlations between the residuals. In this equation, we are interested in the linear combination of *EARLY* and *EARLY* × *HIGHLITIGATION*, and we expect it to be negative. The motivation for each control variable (i.e., determinants of abnormal tone deduced from prior studies) in this model is discussed below.

Big bath strategies (BIG_BATH) It is possible that, to avoid market scrutiny and distract excessive attention, new CEOs engage in big bath strategies (Murphy and Zimmerman, 1993; Pourciau, 1993), whereby a CEO will blame the departing CEO for any poor firm performance in the early years of their tenure and take credit for better future performance. If these strategies, which are prevalent in CEOs' early years, hold true, we should expect a subsequent downward adjustment in the 10-K tone (particularly pertaining to earning-related disclosures) and, thus, a negative association between *ABTONE_EARN* and both *BIGH_BATH* and *EARLY* × *BIG_BATH*.

Net operating assets Asset-scaled net operating assets (NOA) at the beginning of the fiscal year are a proxy for the limits to accruals management (Barton and

[15] For example, the mean of CEO tenure is 7 in Berger *et al.* (1997), 6.6 in Coles *et al.* (2008), and 8.31 in Ryan *et al.* (2009).

[16] Firm or industry fixed effects cannot be included in the model because of high correlation with the *HIGHLITIGATION* dummy.

Simko, 2002; Das *et al*., 2011; Hirshleifer *et al*., 2004). Huang *et al*. (2014) observe that, when managers are constrained in manipulating accruals, they are more likely to resort to (upward) tone management. Thus, we expect a positive association between *NOA* and *ABTONE_EARN*.

Options-based measure of CEO optimism (CEO_OPTIMISM) Prior studies have argued that the tone of corporate disclosures also has a manager-specific component. Upon examining the tone of conference calls, Davis *et al*. (2015) conclude that tone is significantly influenced by a manager-specific tendency to be optimistic or pessimistic.[17] Thus, in our context, we should also expect a positive correlation between *CEO_OPTIMISM* and *ABTONE_EARN*. Furthermore, Campbell *et al*. (2011) documents the significant effect of CEO optimism on forced turnover, thereby implying that CEO optimism is also likely associated with the CEOs' early years variable. To avoid biasing our results, therefore, it is especially important to control for *CEO_OPTIMISM*.[18]

Discretionary accruals (DA) CEOs employ DA as a tool to manage their reported earnings (Dechow *et al*., 1995; Hribar and Collins, 2002; Zang, 2012). Managers could engage in accruals management with the intention of informing market participants about factors other than the economic conditions faced by the firm, consequently reducing information asymmetry. Alternatively, managers could opportunistically utilise DA with the intention to mislead market participants by influencing their perceptions of firm fundamentals (e.g., future performance). In either of the two cases, Li (2010) argues that managers are likely to understand (at least partially) the implications of accruals for future performance. Given this, if they have incentives to mislead (inform) investors, we expect a positive (negative) relationship between *DA* and *ABTONE_EARN*.

To investigate the informativeness of new CEOs' disclosure strategy amid high litigation concerns about future firm prospects (i.e., testing H2), we estimate the following model equation in the subsample of firms with high litigation concerns (i.e., when $HIGHLITIGATION = 1$):[19]

[17] Although Davis *et al*. (2015) also examine the effect of observable manager-specific characteristics (such as, gender, age, early career experiences, etc.) associated with optimism in the tone of conference calls, we believe that, in our context, the *CEO Optimism* variable suffices. This is because, unlike in 10-K filings, a conference call generally involves a relatively more direct (or personalised) interaction with the company's CEO, thereby rendering such individual attributes important considerations for tone. In preliminary analyses, we have run a regression specification with the CEO's age and gender as additional controls but found them to be statistically insignificant.

[18] The untabulated results from re-estimating this model using alternative measures for CEO optimism—namely, investment-based measure of CEO optimism (using capital expenditures) and investment-based measure (using excess investment)—are not materially different.

[19] For the purpose of transparency and completeness, we also report the results in the subsample of firms with low litigation concerns (i.e., when $HIGHLITIGATION = 0$).

$$\begin{aligned} PERFORMANCE_{it+n} = {} & \alpha_0 + \alpha_1 ABTONE\_EARN_{j,t} + \alpha_2 EARLY_{j,t} \\ & \times ABTONE\_EARN_{j,t} + \alpha_3 EARLY_{j,t} + \alpha_4 EARLY_{j,t} \\ & \times CEO\_ABILITY_{j,t} + \alpha_5 CEO\_ABILITY_{j,t} + \alpha_6 DA_{j,t} \\ & + \alpha_7 EARN_{j,t} + \alpha_8 SIZE_{j,t} + \alpha_9 BTM_{j,t} \\ & + \alpha_{10} RET\_ANNUAL_{j,t} + \alpha_{11} STD\_RET_{j,t} \\ & + \alpha_{10} STD\_EARN_{j,t} + industry\ FEs + year\ FEs + \varepsilon_{it} \end{aligned} \quad (3)$$

where $PERFORMANCE = (EARN\ OR\ CFO)$, $n = (1, 2, \text{or } 3)$.

All variable definitions are outlined in Appendix A. Standard errors are clustered by firm to control for cross-sectional correlation between the residuals. *PERFORMANCE* represents an umbrella term for *EARN* and *CFO*. In this model, we are interested in the linear combination of *ABTONE_EARN* and *EARLY* × *ABTOE_EARN*, and we expect it to be negative or insignificant.

In accordance with prior studies on qualitative disclosures (e.g., Huang *et al*., 2014; Li, 2008), we select a battery of control variables, including DA as a tool for earnings management, firm stock and accounting performance (*EARN*, *RET_ANNUAL*), firm size (*SIZE*), future growth potential via book-to-market (*BTM*), and the operating and business risk environment of the firm (*STD_RET* and *STD_EARN*).

To examine the relation between the firm information environment and new CEOs' greater downward tone management strategy amid high litigation concerns (i.e., H3a and H3b), we estimate the following model equation in the subsample of firms with high litigation concerns (i.e., when $HIGHLITIGATION = 1$):[20]

$$\begin{aligned} ABTONE\_EARN_{j,t} = {} & \alpha_0 + \alpha_1 EARLY_{j,t} + \alpha_2 EARLY_{j,t} \times INFO\_ENV_{j,t} \\ & + \alpha_3 EARLY_{j,t} \times CEO\_ABILITY_{j,t} + \alpha_4 EARLY_{j,t} \\ & \times BIG\_BATH_{j,t} + \alpha_5 INFO\_ENV_{j,t} + \alpha_6 CEO\_ABILITY_{j,t} \\ & + \alpha_7 BIG\_BATH_{j,t} + \alpha_8 NOA_{j,t} + \alpha_9 CEO\_OPTIMISM_{j,t} \\ & + \alpha_{10} DA_{j,t} + \varepsilon_{it} \end{aligned} \quad (4)$$

where $INFO\_ENV = (ANALYST\_BEFORE \text{ or } DISPERSION\_BEFORE)$

All variable definitions are outlined in Appendix A. Standard errors are clustered by firm to control for cross-sectional correlation between the residuals. *INFO_ENV* represents an umbrella term for our firm information environment variables—namely, *ANALYST_BEFORE*, *SIZE*, *abs_AFE*. In this equation, we are interested in the coefficient for *EARLY* × *INFO_ENV*, and we expect it to be positive (negative) in the case of *ANALYST_BEFORE* and *SIZE* (*abs_AFE*).

[20] Again, for the purpose of transparency and completeness, we also report the results in the subsample of firms with low litigation concerns (i.e., when $HIGHLITIGATION = 0$).

EMPIRICAL RESULTS

Related to H1

Table 2 reports the regression results from estimating equation (2), which aims to test H1. We observe both in columns (1) and (2) (representing model specifications without and with control variables, respectively) that the coefficient for *EARLY* is negative (significant at the 1% level), suggesting that abnormal tone is significantly more negative in the early years compared with the later years of CEOs' tenures. Column (3) presents the results from estimating our main model, which aims at testing H1, where we control for the effect of litigation concerns via the interaction of *EARLY* and *HIGHLITIGATION* (i.e., *EARLY* × *HIGHLITIGATION*). We observe that the coefficient for *EARLY* alone does not attain any statistical significance at the ordinary levels, while *EARLY* × *HIGHLITIGATION* receives a negative coefficient (significant at the 1% level). These findings confirm that high (*ex ante*) litigation risk is only associated with greater downward tone management (or over-pessimism) in CEOs' early years compared with later years. This implies that the litigation concerns are especially pressing in the early years of CEOs' tenures, affecting their tone strategy (compared to later tenure stages). Overall, these results support H1.

It should be noted that this finding is attained after controlling for the widely documented effect of the 'big bath' phenomenon prevalent in CEOs' early years (i.e., *EARLY* × *BIG_BATH*). Moreover, because performance benchmarks, such

TABLE 2

LITIGATION CONCERNS AND NEW CEOS' TONE MANAGEMENT STRATEGY

DV: ABTONE_EARN	(1)	(2)	(3)
EARLY	–0.0230***	–0.0391***	–0.0113
EARLY × HIGHLITIGATION			–0.0615***
HIGHLITIGATION		–0.0204	–0.0220
EARLY × BIG_BATH			–0.0110
BIG_BATH		–0.0668***	–0.0626***
NOA		–0.0000	–0.0000
CEO_OPTIMISM		0.0327***	0.0329***
DA		–0.0314	–0.0303
Constant	0.0051***	0.0331***	0.0284***
Clustering	Firm	Firm	Firm
Fixed effects	Firm & Year	Year	Year
Observations	42,894	42,877	42,877
Adjusted R-squared	0.42	0.01	0.01

This table reports the coefficient estimates of a regression of abnormal tone pertaining to earnings-related 10-K disclosures (*ABTONE_EARN*) on the CEO Early Years (*EARLY*), severity of litigation pressures (*HIGHLITIGATION*), the interaction of these two variables, and a set of controls and a set of controls. The sample period is from 1993 to 2022. All variable definitions are outlined in Appendix A. Model specification (1) includes both year and firm fixed effects, while specifications (2) and (3) only include year fixed effects. ***, **, * represents statistical significance at the 1%, 5% and 10% levels. The *p*-value of the linear combination of *EARLY* and *EARLY* × *HIGHLITIGATION* in column (3) equals 0.000.

as loss, analyst earnings forecast errors, and change in earnings, have been used in the calculation of abnormal tone (see the subsection 'Abnormal tone (the expected tone model) for a detailed discussion), this greater downward tone management strategy is beyond a mere reflection of (unfavourable) firm performance.[21] This finding might seem contradictory to what has previously been documented, for instance, in Bochkay *et al.* (2019) and Arslan-Ayaydin *et al.* (2020), where CEOs' attempts to adjust the tone of their narrative disclosures upward are discussed. This difference can be explained in two ways. First, in none of these studies has the incremental effect of *ex ante* litigation risk on CEOs' disclosure decisions been controlled for (the research gap filled by our study). Second, the upward tone management evidence in conference calls may not necessarily extend to optimism in the narratives of legal documents, such as firm-audited 10-Ks.

The significant coefficients for our control variables are consistent across columns (2) and (3). The coefficient of *HIGHLITIGATION* alone does not attain any statistical significance. The significantly negative coefficient for *EARLY* × *HIGHLITIGATION* (while the coefficient for *HIGHLITIGATION* is insignificant) substantiates our argument that litigation concerns are especially pressing in CEOs' early years (the point that has not been focused on in the present research. The significantly negative coefficient for *BIG_BATH* is consistent with the argument that new CEOs' choice of big bath strategies (Murphy and Zimmerman, 1993) with an aim to blame departing CEOs of poor firm financial performance results in lower optimistic tone. In addition, the significantly positive coefficient on *CEO_OPTIMISM* suggests that optimistic CEOs tend to adopt a more optimistic disclosure tone.[22]

Related to H2

Table 3 presents the results of testing the hypothesis related to the informativeness of new CEOs' tone management strategy (i.e., H2), with Panels A and B focusing on the relationship between the over-pessimistic disclosure strategy with future earnings and future operating cash flow. In both Panels A and B, columns (1), (3), and (5) correspond to the subsample of firms with high litigation concerns and report the results of the main models that aim at testing H2. In Panel A, we observe that, in none of these columns, the linear combination of *ABTONE_EARN* and *EARLY* × *ABTONE_EARN* attains statistical

[21] Nevertheless, as a robustness check, we again run this model in three scenarios of favourable vs. unfavourable performance: loss vs. profit, positive vs. negative change in earnings, and meeting/beating vs. missing analyst earnings consensus at the end of fiscal year. The untabulated results support the primary ones as to new CEOs' engagement in greater downward tone management in the presence of high litigation concerns, regardless of performance being favourable or unfavourable.

[22] Following Ali and Zhang (2015), who have documented new CEOs' greater upward earnings management, we additionally include the interaction of *DA* and *EARLY* as another regressor in this model. Our (untabulated) results do not materially change.

TABLE 3

INFORMATIVENESS OF NEW CEOS' TONE MANAGEMENT STRATEGY

Panel A: The relationship between the tone management strategy and future earnings

	(1)	(2)	(3)	(4)	(5)	(6)
	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0
VARIABLES	**DV: EARN$_{t+1}$**		**DV: EARN$_{t+2}$**		**DV: EARN$_{t+3}$**	
ABTONE_EARN	0.0000	0.0004	–0.0001*	0.0009**	0.0012*	0.0014***
EARLY × ABTONE_ EARN	–0.0007	0.0000	0.0021*	–0.0007	–0.0011*	0.0020***
EARLY	0.0120**	0.0006	0.0036	0.0072*	0.0123	0.0189***
EARLY × CEO_ABILITY	–0.0131	–0.0302***	–0.0466*	–0.0044	–0.0610*	–0.0109
CEO_ABILITY	0.0241*	0.0045	0.0591***	–0.0321***	0.0391	–0.0206
DA	–0.2182***	–0.1110***	–0.2139***	–0.1055***	–0.1390***	–0.1067***
EARN	0.6518***	0.6677***	0.5085***	0.5163***	0.4196***	0.4675***
SIZE	0.0089***	0.0065***	0.0102***	0.0070***	0.0140***	0.0083***
BTM	0.1435**	–0.0033	0.1247*	0.0193	0.1082	–0.0132
RET_ANNUAL	0.0159***	0.0217***	0.0056*	0.0102***	–0.0019	0.0051**
STD_RET	–0.1602***	–0.0899***	–0.1852***	–0.0949***	–0.1743***	–0.0895***
STD_EARN	–0.0438***	–0.0274***	–0.0282***	–0.0376***	–0.0271**	–0.0433***
Constant	–0.1736***	–0.0216	–0.1605**	–0.0469*	–0.1780*	–0.0262
Clustering	Firm	Firm	Firm	Firm	Firm	Firm
Fixed effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Observations	12,834	23,143	11,619	21,381	10,533	19,762
Adjusted *R*-squared	0.50	0.49	0.39	0.33	0.30	0.26

Panel B: The relationship between the tone management strategy and future operating cash

	(1)	(2)	(3)	(4)	(5)	(6)
	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0
VARIABLES	**DV: CFO$_{t+1}$**		**DV: CFO$_{t+2}$**		**DV: CFO$_{t+3}$**	
ABTONE_EARN	–0.0002	0.0002*	–0.0009*	0.0006*	0.0009*	0.0010**
EARLY × ABTONE_EARN	0.0000	–0.0002*	0.0003	–0.0018**	–0.0008*	–0.0015**
EARLY	0.0048	0.0046	0.0079	0.0146***	0.0035	0.0157***
EARLY × CEO_ABILITY	–0.0072	0.0053	–0.0405	0.0211	–0.0513*	0.0163
CEO_ABILITY	0.0639***	0.0181	0.0768***	–0.0167	0.0622***	–0.0056
DA	–0.2934***	–0.1723***	–0.2290***	–0.1366***	–0.1912***	–0.1273***
EARN	0.5695***	0.6001***	0.4535***	0.5070***	0.4120***	0.4482***

(Continues)

TABLE 3

CONTINUED

Panel B: The relationship between the tone management strategy and future operating cash

	(1)	(2)	(3)	(4)	(5)	(6)
	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0
VARIABLES	**DV: CFO_{t+1}**		**DV: CFO_{t+2}**		**DV: CFO_{t+3}**	
SIZE	0.0111***	0.0033***	0.0122***	0.0045***	0.0134***	0.0045***
BTM	0.0655	–0.0175	0.0572	–0.0224	0.0116	–0.0281
RET_ANNUAL	0.0039	0.0054***	0.0046	0.0043**	0.0010	0.0040**
STD_RET	–0.0801***	–0.0229	–0.1309***	–0.0448**	–0.1020***	–0.0500***
STD_EARN	–0.0261***	–0.0160**	–0.0180	–0.0170**	–0.0236*	–0.0127
Constant	–0.0376	0.0780***	–0.0388	0.0757***	–0.0052	0.0798***
Clustering	Firm	Firm	Firm	Firm	Firm	Firm
Fixed effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Observations	12,822	23,130	11,607	21,372	10,525	19,753
Adjusted R-squared	0.52	0.46	0.41	0.37	0.34	0.28

The *p*-values of the linear combination of *ABTONE_EARN* and *EARLY* × *ABTONE_EARN* in columns (3) and (5) are 0.475 and 0.330, respectively.
This table reports the coefficient estimates of a regression of future financial performance (earnings, *EARN*, in Panel A based on earnings and operating cash, *CFO*, in Panel B) on *ABTONE_EARN*, the CEO Early Years (*EARLY*), their interaction variable and a set of controls. The sample period is from 1993 to 2022. All variable definitions are outlined in Appendix A. All model specifications include both industry and year fixed effects. ***, **, * represents statistical significance at the 1%, 5% and 10% levels. The *p*-values of the linear combination of *ABTONE_EARN* and *EARLY* × *ABTONE_EARN* in column (5) is 0.312.

significance at the ordinary levels. This finding is consistent with our expectation that the documented greater downward tone in management strategy is highly driven by litigation risks emanating from optimistic disclosures rather than CEOs' intention to inform investors about firms' future earnings (supporting H2). The results presented in Panel B (where operating cash flow is used as the dependent variable) are qualitatively similar. That is, in none of the columns (1) and (5), where *HIGHLITIGATION* equals 1, does the linear combination of *ABTONE_EARN* and *EARLY* × *ABTONE_EARN* attain any statistical significance at the ordinary levels. Interestingly, in column (3), the coefficient for the interaction variable does not attain statistical significance, implying that the coefficient for *ABTONE_EARN* is similar both in the early and later stages of the CEOs' tenure. However, *ABTONE_EARN* receives a statistically significant and negative coefficient. This means that a greater downward tone management strategy adopted by the new CEOs is associated with higher future firm performance, thus supporting the argument that this strategy is not informative of the future performance (supporting H2).

Overall, the findings presented in Table 3 confirm that newly appointed CEOs' greater downward tone management strategies, as driven by their *ex ante* litigation concerns, is uninformative about their firms' future performance.

Related to H3a and H3b

Table 4 presents results from examining the effect of the richness of the firm information environment on new CEOs' tone management strategies when *ex ante* litigation concerns are high versus low (i.e., testing H3a and H3b).

To ensure that our findings related to testing H3a and H3b are not affected by our choice of information environment measures, we use three different measures to proxy information environment. Relatedly, we first use, in columns (1) and (2), analyst coverage (denoted by *ANALYST_BEFORE*). Next, and inspired by prior studies (Barth *et al.*, 2001; Lang and Lundholm, 1996; Lehavy *et al.*, 2011; Upadhyay, 2014), we also use firm size (denoted by *SIZE*) and analyst forecast error at the fiscal year-end date (i.e., the absolute value of *AFE* in equation (1), denoted by *abs_AFE*) as our alternative measures of information environment. Firm size is arguably an important attribute of the information environment; that is, large firms have a richer information environment (Miller, 2010). Large analyst forecast errors are indicative of information opacity and, thus, a poor information environment. Columns (3) and (4) ((5) and (6)) present results of testing H3a and H3b using *SIZE* and *abs_AFE* as the proxies for firm information environment, respectively. Columns (1), (3), and (5) correspond to the subsample of firms with high litigation concerns and report the results of the main models that aim at testing H3a and H3b.

As seen in column (1), *EARLY* receives a negative coefficient (significant at the 5% level). This corroborates our previous results pertaining to the existence of the over-pessimistic disclosure strategy when litigation pressures are high. Moreover, we find that *EARLY* × *INFO_ENV* receives a positive coefficient

TABLE 4

RICHNESS OF FIRM INFORMATION ENVIRONMENT AND NEW CEOS' TONE MANAGEMENT STRATEGY

	(1)	(2)	(3)	(4)	(5)	(6)
	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0	HIGHLITIGATION = 1	HIGHLITIGATION = 0
	INFO_ENV:		*INFO_ENV:*		*INFO_ENV:*	
DV: ABTONE_EARN	*ANALYST_BEFORE*		*SIZE*		*abs_AFE*	
EARLY	–0.0547**	–0.0106	–0.0514**	–0.0227	–0.0583***	–0.0185
EARLY × INFO_ENV	0.0429**	0.0023	0.0171**	0.0055	–1.5463*	–0.0618
EARLY × CEO_ABILITY	0.0502	0.0156	–0.0594	–0.0361	0.0291	–0.0188
EARLY × BIG_BATH	–0.0559**	–0.0160	–0.0739***	–0.0081	–0.0912***	–0.0086
INFO_ENV	–0.0329**	–0.0319**	–0.0068	0.0002	–0.0121	–0.0525
CEO_ABILITY	0.1352**	0.0118	0.1325**	–0.0015	0.1115*	–0.0051
BIG_BATH	–0.0678***	–0.0619***	–0.0715***	–0.0588***	–0.0732***	–0.0582***
NOA	–0.0000	0.0000	–0.0000*	0.0000	–0.0000**	0.0000
CEO_OPTIMISM	0.0124	0.0638***	0.0077	0.0532***	–0.0016	0.0524***
DA	–0.1252***	–0.0192	–0.0869*	0.0007	–0.0604	–0.0011
Constant	0.0930***	0.0677***	0.0734*	0.0125	0.0330**	0.0143
Clustering	Firm	Firm	Firm	Firm	Firm	Firm
Fixed effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Observations	12,514	22,125	13,747	24,863	12,755	24,863
Adjusted *R*-squared	0.02	0.01	0.02	0.01	0.02	0.01

This table reports the coefficient estimates of a regression of *ABTONE_EARN* on the CEO Early Years (*EARLY*), the measures of information environment (i.e., *ANALYST_BEFORE*, SIZE, and abs_ *AFE*), their interaction variable and a set of controls, in the two subsamples of firms with high vs. low *ex ante* litigation concerns. The sample period is from 1993 to 2022. All variable definitions are outlined in Appendix A. All model specifications include both industry and year fixed effects. ***, **, * represents statistical significance at the 1%, 5% and 10% levels.

(significant at the 5% level). This finding supports our conjecture that a rich information environment (as characterised by higher analyst coverage prior to the 10-K filing date) mitigates new CEOs' over-pessimistic disclosure strategy. The results using firm size as the proxy for information environment (reported in columns (3) and (4)) are qualitatively similar to those reported in columns (1) and (2). That is, the downward tone management strategy (when the *ex ante* litigation risk is high) is less pronounced for new CEOs in *larger* firms. Finally, using *abs_AFE* as the information environment variable, the results are qualitatively similar.

Overall, the findings in this section provide evidence supporting the argument that new CEOs' greater downward tone management strategy (driven by litigation concerns) is weaker in the presence of a rich firm information environment.

ROBUSTNESS CHECKS

Endogeneity

Our finding about new CEOs' tone strategies amid high litigation concerns might be subject to a simultaneity problem if a shock to the residual term of the underlying model affects both the dependent variable and primary independent variables—namely, endogeneity. To address the potential presence of endogeneity, we employ the 2SLS regression approach—here using instrumental variables—and re-estimate the underlying model (equation (2).

To run the first-stage regression model, we first choose *STD_RET* and *STD_EARN* as instruments to estimate *HIGHLITIGATION*. It is noteworthy that these two variables proxy for volatility of the firm's stock returns (*STD_RET*) and volatility of earnings (*STD_EARN*), thus representing higher operating and business risk (Huang *et al*., 2014). Higher levels of these variables are, thus, expected to be associated with a higher likelihood of a sharp drop in performance and potential lawsuits in the future. Moreover, these variables have previously been used in the tone determination model (i.e., equation (1)) to calculate *ABTONE_EARN*. Therefore, they are, by their very construct, uncorrelated with *ABTONE_EARN*, while their correlations with *HIGHLITIGATION* are 0.159 and 0.188 (all significant at the 1% level), respectively, thus confirming the exogeneity of these instruments.

In the first stage, we estimate a probit model with *HIGHLITIGATION* as the dependent variable and the aforementioned instruments, in addition to the control variables used in equation (2) (i.e., *BIGH_BATH, NOA, CEO_OPTIMISM*, *BTM* and *DA*) as regressors. Next, we estimate the second-stage regression model (by re-estimating equation (2)) using the interaction of the fitted dependent variable from the first-stage model (i.e., *HIGHLITIGATION_fitted*) with *EARLY* as the primary independent variable.

Table 5 presents the results from the estimation of our 2SLS regressions. As observed in Panel A (corresponding to the first-stage regression), *STD_RET* and

TABLE 5

RESULTS FROM ESTIMATING THE IV REGRESSIONS

Panel (A): First-stage regression results, using *STD_RET* and *STD_EARN* as instruments	
DV: *HIGHLITIGATION*	Coefficient
STD_RET	0.8735***
STD_EARN	0.5072***
Control variables	Included
year FE	Included
LR (Chi2)	2664.91
Prob > Chi2	0.0000
Pseudo *R*2	0.0565
Observations	35,867
Panel (B): The second-stage regression results	
(DV: ABTONE_EARN)	
EARLY	–0.0453***
EARLY × HIGHLITIGATION_fitted	–0.2744**
HIGHLITIGATION_fitted	0.0367
Control variables	Included
year FE	Included
Adj. R^2	.01
Observations	35,867

All variable definitions are outlined in Appendix A. All model specifications include both industry and year fixed effects. Standard errors are clustered at the firm level. ***, **, * represents statistical significance at the 1%, 5% and 10% levels.

STD_EARN receive significantly positive coefficients. This implies that litigation risk in firms with volatile earnings and stock returns is higher. As presented in Panel B, our primary findings related to new CEOs' tone management strategies again hold. That is, we again observe that a high (*ex ante*) litigation risk is associated with greater downward tone management. Overall, the findings presented in Table 5 substantially mitigate our concerns about any material bias in the results because of an endogeneity problem.

Alternative Abnormal Tone Measures

As another robustness check, we test our H1 using abnormal tone pertaining to overall 10-K (denoted by *ABTONE_ALL*) and non-forward-looking 10-K disclosures (denoted by *ABTONE_NonFLS*).[23] The results from these robustness tests are presented in Table 6, where column (1) ((2)) is based on *ABTONE_ALL* (*ABTONE_NonFLS*). The findings reported in both columns show that high

[23] Given that findings of prior studies, such as Cazier *et al.* (2020), provide evidence of the SEC's safe harbour law effectively shielding firms' qualitative forward-looking statements from litigation risk, in this robustness check, we constrain the abnormal tone only to non-forward-looking 10-K disclosures.

TABLE 6

ALTERNATIVE TESTS OF THE RELATION BETWEEN LITIGATION CONCERNS AND NEW CEOS' TONE MANAGEMENT STRATEGY (USING TONE PERTAINING TO NON-FORWARD-LOOKING AND OVERALL 10-K DISCLOSURES)

	(1)	(2)
VARIABLES	DV: ABTONE_ALL	DV: ABTONE_ NonFLS
EARLY	–0.0174*	–0.0189**
EARLY × HIGHLITIGATION	–0.0561***	–0.0496***
EARLY × BIG_BATH	–0.0138	–0.0099
HIGHLITIGATION	–0.0071	–0.0112
BIG_BATH	–0.0563***	–0.0514***
NOA	–0.0000**	–0.0000*
CEO_OPTIMISM	–0.0036	–0.0034
DA	0.0106	0.0088
Constant	0.0340***	0.0324***
Clustering	Firm	Firm
Fixed effects	Year	Year
Observations	42,878	42,878
Adjusted *R*-squared	0.01	0.01

This table reports the coefficient estimates of a regression of abnormal tone pertaining to overall 10-K filings (*ABTONE_ALL*) in column (1) and non-forward-looking disclosures in 10-K filings (*ABTONE_NonFLS*) on the CEO Early Years (*EARLY*), severity of *ex ante* litigation concerns (*HIGHLITIGATION*), the interaction of these variables and a set of controls and a set of controls. The sample period is from 1993 to 2022. All variable definitions are outlined in Appendix A. Both model specifications (1) and (2) include year fixed effects. ***, **, * represents statistical significance at the 1%, 5% and 10% levels.

litigation concerns are associated with greater downward tone management in CEOs' early years.

Alternative Measure of CEO Early Years

As another robustness check, we attempt to provide a justification for using the first three years of the CEOs' tenures as a cutoff when defining *EARLY*. Therefore, we re-estimate equation (2) after replacing *EARLY* with indicator variables for each of the first five years of CEOs' tenure—namely, *FIRST_YEAR*, *SECOND_YEAR*, *THIRD_YEAR*, *FOURTH_YEAR*, and *FIFTH_YEAR*. *FIRST_YEAR* equals 1 if the observation corresponds to the first year of CEOs' tenures, and 0 otherwise, and so on.

Table 7 reports the findings of this robustness test. While column (1) reports the results of the base model (without any control variable), column (2) presents the results when the control variables are included. Finally, the interaction of *HIGHLITIGATION* with the five indicator variables is controlled in column (3). As we observe in these columns, usually only the indicator variables pertaining to the first three years of CEOs' tenures receive statistically significant coefficients (at the ordinary levels). This supports our choice of the first three years as the cutoff to define *EARLY*. The findings

TABLE 7

ALTERNATIVE TESTS OF THE RELATION BETWEEN LITIGATION CONCERNS AND NEW CEOS' TONE MANAGEMENT STRATEGY (USING *EARLY* SPLIT IN FIVE SEPARATE DICHOTOMIES)

	(1)	(2)	(3)
VARIABLES			
FIRST_YEAR	–0.0141	–0.0101	0.0299
SECOND_YEAR	–0.0381***	–0.0484***	–0.0337**
THIRD_YEAR	–0.0265**	–0.0454***	–0.02604***
FOURTH_YEAR	–0.0128	–0.0272*	–0.0064
FIFTH_YEAR	–0.0199	–0.0240	–0.0160
FIRST_YEAR × HIGHLITIGATION			–0.0354
SECOND_YEAR × HIGHLITIGATION			–0.0506*
THIRD_YEAR × HIGHLITIGATION			–0.0547**
FOURTH_YEAR × HIGHLITIGATION			–0.0560
FIFTH_YEAR × HIGHLITIGATION			–0.0288
FIRST_YEAR × BIG_BATH			–0.0717**
SECOND_YEAR × BIG_BATH			0.0030
THIRD_YEAR × BIG_BATH			–0.0067
FOURTH_YEAR × BIG_BATH			–0.0117
FIFTH_YEAR × BIG_BATH			0.0028
HIGHLITIGATION		–0.0471**	–0.0267
BIG_BATH		–0.0692***	–0.0616***
NOA		–0.0000	–0.0000
CEO_OPTIMISM		0.0400***	0.0398***
DA		0.0313	0.0302
Constant	0.0073*	0.0354***	0.0267*
Clustering	Firm	Firm	Firm
Fixed effects	Firm & Year	Year	Year
Observations	42,894	42,877	42,877
Adjusted R-squared	0.42	0.01	0.01

This table reports the coefficient estimates of a regression of *ABTONE_EARN* on five separate indicator variables, representing the first five years of CEO tenure, and a set of controls. The sample period is from 1993 to 2022. All variable definitions are outlined in Appendix A. Model specification (1) includes both year and firm fixed effects, while specification (2) only includes year fixed effects. ***, **, * represents statistical significance at the 1%, 5% and 10% levels.

presented in column (3) reveal that our primary results as to the effect of litigation concerns on new CEOs' tone management strategy hold but again exclusively in the first three years (again lending support to our choice of three years to define *EARLY*).

CONCLUSION

The present study has introduced a new dimension to the literature on CEOs' choices of narrative disclosure strategy in the early years of their tenure, by focusing on the impact of a contextual factor—namely, litigation concerns. The importance of our research lies in two facts. First, career concerns (the overwhelming perspective

in the literature) and litigation concerns (the perspective that is largely overlooked) propose opposing expectations about new CEOs' strategic disclosure choices pertaining to tone. That is, although in their early tenure years CEOs need to positively influence stakeholders' perceptions about their abilities and, thus, positively adjust the strategic tone, the likelihood of potential lawsuits could deter this strategy (leading to downward tone adjustment). Moreover, the literature has not considered that newly appointed CEOs are more risk averse (Chen and Zheng, 2014), thereby suggesting that litigation risk is particularly pressing in CEOs' early years. By linking the significance of *ex ante* litigation risk to new CEOs' current tone strategies, our paper fills this specific gap.

Our findings have shown that, in the presence of high *ex ante* litigation risk, CEOs' narrative disclosures are overly pessimistic exclusively in the early years of their tenure. Notably, this result completely contradicts the findings of other studies that merely rely on CEOs' career concerns (see, e.g., Bochkay *et al.*, 2019). Our results further show that this over-pessimistic disclosure strategy is uninformative about a firm's future prospects, suggesting that the choice of this strategy is heavily driven by litigation concerns in CEOs' early years rather than an intention to inform market participants about future firm prospects. Finally, we have documented weaker evidence of new CEOs' over-pessimistic disclosure strategy in a rich firm information environment—where information asymmetry between firms and outside stakeholders is lower. Overall, our findings corroborate that, without considering the impactful role of litigation concerns, the literature does not offer a complete picture of new CEOs' tone management strategies.

The present study opens several avenues for further research. For instance, although we focused on CEOs' tone management strategies at the early stage of their tenures, a potentially interesting research topic would be focusing on later stages of their tenures, such as the final year. This is because, closer to the end of their tenures, CEOs likely have other career concerns—namely, they may look for post-retirement employment opportunities (such as board memberships). Furthermore, although we have examined the relationship between high litigation risk and new CEOs' tone strategies, an interesting topic for further research would be investigating the implications of litigation risk for their disclosure strategies pertaining to other textual attributes (such as readability and content). Finally, although we tested our hypotheses using a sample of publicly listed US firms, testing these hypotheses in the context of other countries with different business environments, judicial systems, and investor mindsets could be another interesting research topic.

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APPENDIX A

VARIABLE DEFINITIONS AND MEASUREMENT

Variable	Notation	Definition/Measurement
Count of words in 10-K	10K Wordcount	Total number of words in the 10-K document
10-K tone	TONE_EARN	$\frac{\text{(Weighted count of positive words} - \text{Weighted count of negative words)}}{\text{Weighted count of all words}}$
	TONE_ALL	
	TONE_NonFLS	
Earnings	EARN	Earnings before extraordinary items/lagged total assets
Change in earnings	ΔEARN	Change in $EARN_t$ – $EARN_{t-1}$
Annual returns	RET_ANNUAL	Buy-and-hold annual returns at the fiscal year-end
Size	SIZE	Log(market capitalization), where market capitalization is defined as common shares outstanding multiplied by annual closing price
Book-to-Market ratio	BTM	Book value of equity divided by the market value of equity at the fiscal year-end
Return volatility	STD_RET	Standard deviation of monthly returns over the fiscal year
Earnings volatility	STD_EARN	Standard deviation of EARN over the last five years
Business segments	BUS_SEG	Number of business segments of a firm
Geographical segments	GEOG_SEG	Number of geographical segments of a firm
Firm Age	AGE	Log[1 + (number of years since a firm appears in CRSP monthly file)]
10-K abnormal tone	ABTONE_EARN ABTONE_ALL ABTONE_NonFLS	Residual term from annual cross-sectional regressions of TONE_EARN/TONE_ALL/ TONE_NonFLS on its determinants (see Equation (1))
CEO's tenure		Number of years the CEO has been in that position (if missing, then number of years at the firm) as of the fiscal year-end; computed using the "BECAMECEO" and "JOINED_CO" variables in *Execucomp*.
CEO's early years of tenure	EARLY	A dummy variable equal to 1 for firm-years corresponding to the first three years of a CEO's tenure, and 0 otherwise
High-litigation firms	HIGHLITIGATION	A dummy variable equal to 1 for firms operating in a high-litigation industry (SIC codes 2833–2836; 3570–3577; 3600–3674; 5200–5961; 7370–7374), and 0 otherwise; See Appendix B for the specific industry titles
Net operating assets	NOA	(Operating assets (OA) – Operating liabilities (OL))/ lagged total assets, where OA = total assets – cash and short-term investment, and OL = total assets – debt included in current liabilities – long term debt – minority interests – preferred stocks – common equity [using

(Continues)

Variable	Notation	Definition/Measurement
		Hirshleifer *et al.* (2004)]. Missing values of long-term debt, minority interest, or preferred stock are coded as zero.
Options-based measure of CEO optimism	CEO_OPTIMISM	A dummy variable equal to 1 if the CEO holds (vested) stock options that are at least 67% in-the-money* at least twice during the sample period, and 0 otherwise. [CEOs thus identified as optimistic remain so for the rest of the sample period, beginning with the first time they exhibited this behaviour] *Average moneyness of the CEO's option portfolio is calculated as (Campbell *et al.*, 2011): Average moneyness = stock price/ strike price – 1, where strike price = fiscal year end stock price - average realizable value, and average realizable value (for each CEO-year) = total realizable options value/ number of options held by the CEO.
Cash flows	CFO	Operating cash flow/lagged total assets
Accruals		EARN – CFO
Managerial ability	CEO_ABILITY	Residual-based measure of managerial (CEO) ability from Demerjian *et al.* (2012)
Analyst following before the 10-K filing date	ANALYST_BEFORE	Log [1 + (number of analysts following the firm)] (using the most recent data on I/B/E/S summary before the 10-K filing date)
Analyst forecast error at the end of the fiscal year	AFE	I/B/E/S EPS_t *minus* the median of the most recent analysts' forecasts, deflated by stock price per share at the end of the fiscal year.
Loss	LOSS	A dummy variable equal to 1 if EARN is negative, and 0 otherwise
Big bath	BIG_BATH	A dummy variable equal to one for any fiscal year-end observation for which Special Items (COMPUSTAT's spi) is negative and exceeds 1% the lagged firm's total assets; and zero, otherwise (Elliott and Shaw, 1988, Haggard *et al.*, 2015)
Discretionary accruals	DA	Discretionary accruals calculated using the modified Jones model (Dechow *et al.*, 1995)
Investment-based measure of CEO optimism (Capital Expenditures)		A dummy variable equal to 1 if capital expenditures divided by lagged total assets is greater than its industry median value, and 0 otherwise.
Investment-based measure of CEO optimism (Excess investment)		A dummy variable equal to 1 if the residual of a regression of total asset growth on sales growth (run at the industry-year level) is greater than zero, and 0 otherwise

APPENDIX B

STEPS IN PARSING THE 10-K DOCUMENTS

All 10-K documents filed between the years 1993 and 2022 were downloaded through the SEC EDGAR tool. The .html version of this document was downloaded, which generally contains figures and tables as well. These 10-K documents were parsed and converted to txt using R scripts, in which we followed the following steps:

1. Removal of any graphic/jpg/xls segment.
2. Removal of all tables.
3. Removal of all other HTML tags.
4. The remaining text was cleaned through the following steps:

4.1) text was split into sentences based on particular punctuation ['.','!', or '?']

4.2) removal of sentences that were short (i.e., less than 3 words) and those with a high fraction of numerical content (i.e., where more than 75% of the sentences consists out of numbers;

4.3) sentences were next categorised as being (non-)forward-looking and earnings-related based following Muslu *et al.* (2015) and a keyword-approach respectively (see footnote 12);

4.4) The different categorized sentences were then put again together as a whole, that is, for the calculation of the tone of earnings-related disclosure, all earnings-related sentences were put into one large string; in the different larger text strings, numerical information and punctuation was removed, as well as stop words ["a", "the", "is" "are", etc.], such that only a larger vector of words remains.

4.5) each word was reduced to its stem form;

4.6) positive and negative words [identified based on a stemmed version of the financial sentiment dictionary provided by Loughran and McDonald (2011)] were counted; positive words that were immediately preceded by a stemmed-version of negation words [no, not, none, neither, never or nobody] were counted as negative;

4.7) the weight for each word was calculated using the term-weighting scheme described in the subsection 'Tone of the 10-K document';

APPENDIX C

HIGH-LITIGATION INDUSTRY TITLES

SIC	INDUSTRY TITLE
2833	MEDICINAL CHEMICALS & BOTANICAL PRODUCTS
2834	PHARMACEUTICAL PREPARATIONS
2835	IN VITRO & IN VIVO DIAGNOSTIC SUBSTANCES
2836	BIOLOGICAL PRODUCTS, (NO DISGNOSTIC SUBSTANCES)
3570	COMPUTER & OFFICE EQUIPMENT
3571	ELECTRONIC COMPUTERS
3572	COMPUTER STORAGE DEVICES
3575	COMPUTER TERMINALS
3576	COMPUTER COMMUNICATIONS EQUIPMENT
3577	COMPUTER PERIPHERAL EQUIPMENT, NEC
3600	ELECTRONIC & OTHER ELECTRICAL EQUIPMENT (NO COMPUTER EQUIP)
3612	POWER, DISTRIBUTION & SPECIALTY TRANSFORMERS
3613	SWITCHGEAR & SWITCHBOARD APPARATUS
3620	ELECTRICAL INDUSTRIAL APPARATUS
3621	MOTORS & GENERATORS
3630	HOUSEHOLD APPLIANCES
3634	ELECTRIC HOUSEWARES & FANS
3640	ELECTRIC LIGHTING & WIRING EQUIPMENT
3651	HOUSEHOLD AUDIO & VIDEO EQUIPMENT
3652	PHONOGRAPH RECORDS & PRERECORDED AUDIO TAPES & DISKS
3661	TELEPHONE & TELEGRAPH APPARATUS
3663	RADIO & TV BROADCASTING & COMMUNICATIONS EQUIPMENT
3669	COMMUNICATIONS EQUIPMENT, NEC
3670	ELECTRONIC COMPONENTS & ACCESSORIES
3672	PRINTED CIRCUIT BOARDS
3674	SEMICONDUCTORS & RELATED DEVICES
5200	RETAIL-BUILDING MATERIALS, HARDWARE, GARDEN SUPPLY
5211	RETAIL-LUMBER & OTHER BUILDING MATERIALS DEALERS
5271	RETAIL-MOBILE HOME DEALERS
5311	RETAIL-DEPARTMENT STORES
5331	RETAIL-VARIETY STORES
5399	RETAIL-MISC GENERAL MERCHANDISE STORES
5400	RETAIL-FOOD STORES
5411	RETAIL-GROCERY STORES
5412	RETAIL-CONVENIENCE STORES
5500	RETAIL-AUTO DEALERS & GASOLINE STATIONS
5531	RETAIL-AUTO & HOME SUPPLY STORES
5600	RETAIL-APPAREL & ACCESSORY STORES
5621	RETAIL-WOMEN'S CLOTHING STORES
5651	RETAIL-FAMILY CLOTHING STORES
5661	RETAIL-SHOE STORES
5700	RETAIL-HOME FURNITURE, FURNISHINGS & EQUIPMENT STORES
5712	RETAIL-FURNITURE STORES
5731	RETAIL-RADIO, TV & CONSUMER ELECTRONICS STORES

(Continues)

SIC	INDUSTRY TITLE
5734	RETAIL-COMPUTER & COMPUTER SOFTWARE STORES
5735	RETAIL-RECORD & PRERECORDED TAPE STORES
5810	RETAIL-EATING & DRINKING PLACES
5812	RETAIL-EATING PLACES
5900	RETAIL-MISCELLANEOUS RETAIL
5912	RETAIL-DRUG STORES AND PROPRIETARY STORES
5940	RETAIL-MISCELLANEOUS SHOPPING GOODS STORES
5944	RETAIL-JEWELRY STORES
5945	RETAIL-HOBBY, TOY & GAME SHOPS
5960	RETAIL-NONSTORE RETAILERS
5961	RETAIL-CATALOG & MAIL-ORDER HOUSES
7370	SERVICES-COMPUTER PROGRAMMING, DATA PROCESSING, ETC.
7371	SERVICES-COMPUTER PROGRAMMING SERVICES
7372	SERVICES-PREPACKAGED SOFTWARE
7373	SERVICES-COMPUTER INTEGRATED SYSTEMS DESIGN
7374	SERVICES-COMPUTER PROCESSING & DATA PREPARATION

Source: US Securities and Exchange Commission, https://www.sec.gov/corpfin/division-of-corporation-finance-standard-industrial-classification-sic-code-list).