

Mixed emotions? Firm performance implications of tenor incongruent firm 10-K forms versus mass media reporting tenor

Michael Hadani¹ and Michal Strahilevitz

Introduction

Stakeholders – particularly shareholders – depend on corporate information to evaluate firm value under conditions of uncertainty (Zavyalova *et al.*, 2012). To reduce information asymmetries between insiders and outsiders, firms routinely communicate through formal disclosures, most notably annual Form 10-K filings, which are mandatory annual reports submitted by publicly traded firms in the USA to the Securities and Exchange Commission (SEC) and which provide detailed accounts of financial performance, risk factors and strategic direction. The US setting offers a strong testing ground for these dynamics: 10-K filings constitute a standardized, mandatory disclosure regime and US public firms operate within an unusually dense and independent business-media ecosystem and deep, liquid equity markets in which valuation consequences are observable and comparable across firms. Signaling theory (Spence, 1973, 2002) highlights how such disclosures convey unobservable information that, alongside other signals, helps outsiders assess firm value (Connelly *et al.*, 2011, 2025).

However, this literature has limitations. First, signaling research has largely treated corporate signals as objective, rational and informational, focusing on structural or factual attributes such as financial metrics, governance characteristics or strategic actions (Drover *et al.*, 2018), while paying limited attention to the affective dimension of communication – that is, the emotional tenor embedded in corporate disclosures. Recent work suggests that affective tone, whether in speech (Mayew and Venkatachalam, 2012) or written disclosures such as 10-K reports (Loughran and McDonald, 2011, 2016), shapes perceptions beyond factual content. Specifically, the tenor of 10-K reports has been shown to add diagnostic value beyond mere datum (Bai *et al.*, 2019; Loughran and McDonald, 2011), influencing firm value, stock movements, earnings and risk perception. Feldman *et al.* (2010) similarly find that the affective tenor of 10-K forms adds incremental and meaningful information beyond reported financial measures (see also Cohen *et al.*, 2020; Loughran and McDonald, 2011, 2016). In other words, these studies document not only that 10-K forms' emotional cues are identified by market participants but also matter when evaluating publicly traded firms, functioning as implicit signals that are assessed alongside factual data and go beyond it (i.e.; Tetlock *et al.*, 2008).

Second, signaling theory has tended to ignore the reality that receivers – firm outsiders seeking and processing informational cues – often face concurrent and incongruent mixed signals from multiple sources, rather than the uniform or congruent signals much of signaling scholarship assumes (Drover *et al.*, 2018; Taj, 2016). In other words, signaling theory tends to assume not

Michael Hadani and Michal Strahilevitz are both based at School of Economics and Business Administration, Saint Mary's College of California, Moraga, California, USA.

© Michael Hadani and Michal Strahilevitz. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/>

only uniformity but a more rational signaling processing dynamic. Such incongruent signals frequently originate from mass media reporting, a common and central information source on firm behavior, fundamentals and value (Carroll, 2011; Hadani *et al.*, 2021; Roulet, 2020). Mass media outlets continuously generate and disseminate firm-related information, acting as influential intermediaries – or “infomediaries” – that strongly shape stakeholder perceptions (Deephouse, 2000; Pollock and Rindova, 2003).

Agenda-setting theory (AST; McCombs and Reynolds, 2002; Kim *et al.*, 2017) emphasizes mass media’s role in directing attention and shaping judgments about firms, not just through coverage salience but also through mass media reporting tenor. Unlike signaling theory, AST acknowledges that media tenor – the emotional tone reflected in mass media news reporting on firms – can strongly influence outsider evaluations (Wu and Lin, 2017), particularly for publicly traded firms. Mass media is widely considered a central and legitimate information source on firms’ conduct and character (Roulet, 2020; Zavyalova *et al.*, 2012, 2017). As long documented by AST research, mass media firm-level news reporting not only directs attention to firms but, through tenor, shapes how firm outsiders think and feel about them, thereby influencing firm outcomes such as performance (Wanta and Ghanem, 2007). Because emotions and feelings are key aspects of social evaluations, as well as how we process information and prioritize it (Ledingham and Bruning, 2000), the tenor of news coverage influences feelings about firms beyond fundamental data (Tetlock, 2007; Engelberg and Parsons, 2011) and shapes firm-level evaluation.

Despite these parallel streams of research, little is known about how stakeholders respond when firm-generated and media-generated information sources convey conflicting emotional or affective signals, especially when it comes to the legally mandated 10-K reports. In practice, firms’ disclosures and media coverage likely differ in tone, creating what we term affective incongruence across information channels. Existing research largely examines each source in isolation (Carroll, 2011), implicitly assuming consistency or ignoring the possibility of divergence. As a result, we lack a clear understanding of how stakeholders interpret and react to mixed emotional cues in multi-source information environments. This gap is particularly important in the context of 10-K filings, which are widely used by investors and analysts to assess firm value (Baker and Wurgler, 2013; Loughran and McDonald, 2011, 2016). While prior studies demonstrate that the tenor of 10-K filings influences market outcomes, they do not consider how this tone interacts with contemporaneous or prior media coverage on the same set of topics covered by 10-K reports.

To address this gap, we integrate signaling theory with agenda-setting theory to examine how incongruence between the affective tone of firm 10-K reports and mass media coverage of similar topics influences firm performance. We pose one overarching question: how does incongruence between the affective tenor of a firm’s 10-K and that of mass-media coverage affect firm value, and do the direction (positive versus negative) and timing (concurrent versus prior) of that incongruence alter the effect? Our four hypotheses develop facets of this single question. We argue that the interplay between firm-generated tenor and media tenor can reinforce or conflict with each other, shaping perceptions of firm value.

Our study makes three contributions. First, we extend signaling theory by treating affective content as a meaningful signal, challenging the assumption that only costly or structural signals carry value-relevant information. As noted by Drover *et al.* (2018), signaling theory offers little insight into the consequences of multiple, mixed or incongruent signals facing firm outsiders, and tends to assume congruent signals (Pernkopf *et al.*, 2021). Signaling theory also implicitly assumes signal intentionality, whereas emotional cues may or may not be intentional. In other words, signaling theory has tended to take an overly rational view of signal detection and interpretation by outsiders (Park and Patel, 2015); yet dealing with conflicting signals is more cognitively challenging than implied by prior signaling research (Drover *et al.*, 2018). Second, we advance agenda-setting theory by demonstrating that the

impact of mass media firm reporting is contingent on its interaction with firm-generated disclosures rather than operating independently. Third, we contribute to research on information environments by demonstrating that emotional incongruence between firm and media messages measurably impacts firm-level market outcomes – a central concern in organizational and strategic management studies. The remainder of the paper develops our theoretical framework and hypotheses, describes the data and measures and presents and discusses the results.

Empirically, we compare the tenor of 10-K reports to the tenor of concurrent and prior mass media reporting on topics covered in 10-K reports.

Theoretical background

Signaling theory

Signaling theory addresses the reduction of information asymmetries between two parties – typically firm insiders and firm outsiders (Spence, 2002). It focuses on the insider/outsider information gap, where insiders possess private firm-specific knowledge (Almazan *et al.*, 2008). The theory holds that signals are often costly to send, so only firms with certain qualities can credibly emit them (Busenitz *et al.*, 2005); as such, signals are assumed to be diagnostic or reveal some private information about the firm emitting them, only privy to insiders.

Specifically, signaling theory assumes that signalers may bear a cost if the signal they release is not aligned with – or does not reflect – a fundamental or “true” firm attribute, with the critical caveat that false signals are sometimes sent nonetheless. The key issue is that receivers – who can be any group of outsiders interested in learning about firms – should benefit from signals in some substantial manner; signals should increase outsiders’ utility (Connelly *et al.*, 2011), which is especially important for publicly traded firms. In other words, the signal should provide an instrumental benefit to receivers. Unlike agency theory’s focus on information asymmetry and moral hazards (Eisenhardt, 1989; Jensen and Meckling, 1976), the focus of signaling theory is on latent firm knowledge asymmetry.

Receivers benefit from credible signals but also bear costs in observing and interpreting them (Certo, 2003). Most signaling studies emphasize factual or structural cues – e.g. venture capital reputation, board structure, compensation arrangements, patents and IPO pricing (Pollock and Gulati, 2007). Emotions, by contrast, are often dismissed as “cheap talk” – costless and non-binding (Farrell and Rabin, 1996). Yet this view strongly overlooks findings that emotional tone in disclosures does reflect real firm conditions beyond facts (Baker and Wurgler, 2013; Loughran and McDonald, 2016). Such signals provide additional information that complements formal or structural cues, and although potentially costless, can still be high-quality and offer utility to firm outsiders. In other words, emotional tone may unintentionally reveal difficult-to-communicate information and thus may not be “cheap talk” at all. Such cues can break the assumed tradeoff between cost and utility, adding subtle insights into firm characteristics and attributes. Importantly, firms are not the only ones sending emotional messages – mass media plays a key role as well, releasing information about firms on a constant basis.

Agenda-setting theory: mass media as information intermediaries

Agenda-setting theory focuses on mass media news reporting’s ability to generate scrutiny and attention to social actors such as firms, and its impact on the way stakeholders and the public view firms’ behavior and characteristics (McCombs and Reynolds, 2002; Carroll and McCombs, 2003; Roulet, 2020). Mass media news outlets explore, cover, review, analyze, synthesize and disseminate firm-level news that informs firm outsiders about the behaviors, character and overall performance of firms (Carroll, 2011; Deephouse, 2000; Roulet, 2020).

Such a function is critical for publicly traded firms given their size and economic importance. Acting as information intermediaries or “infomediaries,” mass media helps shape public opinion on firms (Carroll, 2004; Carroll and McCombs, 2003; Zavyalova *et al.*, 2012); mass media firm-level reporting is thus a key source of information on firms.

AST notes that mass media operates at two sequential levels (Kim *et al.*, 2017). At the first level, media reporting renders specific entities or actors more salient; in the corporate context, mass media draws public attention and guides public interest and stakeholder priorities to corporate actions, behaviors and overall conduct (Hadani *et al.*, 2021; Kim *et al.*, 2017). At the second level, mass media goes beyond providing cues by making emotional judgments, signaling feelings about actors’ behavior or character through the tenor of news articles on firms; affective dimensions are a critical aspect of how mass media impacts outsiders’ views of firms (Carroll and McCombs, 2003; Fombrun and Shanley, 1990). Media sentiment about firms shapes public sentiment about firms, and can impact firm reputation (Carroll, 2009; Deephouse, 2000) as well as legitimacy (Etter *et al.*, 2018; Lamin and Zaheer, 2012).

Coleman and Wu (2010) highlight the role that emotions in mass media reporting play not only in attracting attention but in influencing how consumers of media information view actors covered. They argue that the tenor of reporting matters and that emotions are as important as nonemotional information in arriving at judgments. Coleman and Wu (2010) further note that negative emotions are more salient to readers than positive ones, extending the second-level effect of mass media not only as communicating emotional tone but also as influencing the specific feelings of users of such information. Empirically, Luo *et al.* (2019)’ meta-analysis of 67 studies across more than 40 years (1972–2015) provides consistent evidence for the agenda-setting effects of mass media at both the first and second levels – both in terms of attention and salience and in terms of the tenor of coverage. In sum, media tenor influences public sentiment, shaping firm reputation, legitimacy and value (Carroll, 2009; Zavyalova *et al.*, 2012).

Hypotheses

Mixed affective messages and firm value

Prior research demonstrates that the tone of firms’ 10-K disclosures influences how external stakeholders evaluate firm value, above and beyond objective financial information (Barth *et al.*, 2024; Cohen *et al.*, 2020). As formal, highly anticipated and regulated disclosures, 10-K filings are intended to reduce information asymmetries by conveying credible signals about firm performance and prospects. The affective tone embedded in these disclosures has been shown to shape investor interpretations, suggesting that tone itself functions as a meaningful signal (Bodnaruk *et al.*, 2015; Cohen *et al.*, 2020).

However, stakeholders rarely evaluate firm disclosures in isolation. Instead, they are simultaneously exposed to mass media coverage on firms, which provides ongoing assessments of firms through its own affective framing. As a result, the tone of firm-generated signals may either align with or diverge from media-generated evaluations. We argue that incongruence between the emotional tone of these two sources creates interpretive ambiguity – what may be experienced as cognitive dissonance – as outsiders attempt to make sense of conflicting pieces of information regarding the state of the firm and its value. Cognitive dissonance theory (Festinger, 1957) holds that exposure to conflicting cognitions – in our case conflicting emotional messaging – generates psychological discomfort that individuals are motivated to reduce, typically by reevaluating one or more of the conflicting elements (Harmon-Jones and Mills, 2019). Applied to corporate information environments, when firm-generated and media-generated affective cues about the same firm diverge, stakeholders cannot easily reconcile the two without reweighting their relative credibility (Kim and Jensen, 2014). In practice, this reweighting will

take into account which source is more salient and more credible: when two sources conflict, audiences assign greater interpretive weight to the source perceived as more salient, more legitimate or less subject to self-presentation incentives (Pornpitakpan, 2004; Tetlock, 2007). The emotional tenor mismatch or gap itself thus becomes informative; outsiders treat it as a signal that one of the two sources is less reliable than the other, and they resolve the resulting ambiguity by anchoring their evaluation on the source they deem more credible. Tenor misalignment thus increases uncertainty, prompting stakeholders to rely more heavily on cues perceived as more salient, accessible or credible.

We expect mass media tenor to weigh more heavily than firm 10-K reporting tenor under conditions of incongruence, for two related theoretical reasons. First, unlike internal firm signals – which tend to be positive and need to be at least somewhat correlated with a “true” underlying yet latent firm quality (Certo *et al.*, 2001; Connelly *et al.*, 2025) – mass media’s agenda-setting power lies in its proven ability to attract outsiders’ attention and to set an affective tone, influencing external audiences’ views and feelings about firms (Carroll, 2009, 2011); it need not be aligned with some latent firm attribute to attract attention. Yet, because mass media firm-level information is easily accessible to different stakeholders, it reflects a salient cue relative to firm signals (Carroll, 2011; Deephouse, 2000; Roulet, 2020).

Second, executives may not always act in the best interest of outsiders when they release firm-specific information; firm signals sent to outsiders may not fully reflect internal or latent firm characteristics, as rigidly assumed by signaling theory. Public traded firms may aim to generate a specific image that may not align with underlying realities for different reasons. For example, firms often restate earnings, employ earnings management techniques to smooth cash flow discrepancies, and time information releases to suit short-term needs; firms have been shown to manipulate informational cues sent to outsiders to serve executive or short-term benefits (Bergstresser *et al.*, 2006; Daines *et al.*, 2018; Edmans *et al.*, 2017). Firms have also been shown to decouple communicated formal obligations from actualized strategic actions. Thus, relying solely on firm-generated information may not always increase outsider utility, raising the need to seek additional information sources.

This concern applies less to mass media outlets, which do not serve the needs of specific firms and are therefore relatively free to convey both positive and negative information on firms they report on; mass media provides heterogeneous signals on firms. Such reportorial freedom is part of why mass media is a powerful and often trusted infomediary (Hadani *et al.*, 2021; Zavyalova *et al.*, 2012). As noted by Deephouse (2000), mass media is often seen as a key legitimate source on firms. All else equal, because of mass media salience, ease of access, heterogeneous tenor and legitimacy as an information source, the cognitive weight given to mass media tenor relative to firm tenor will loom larger, and the larger the tenor gap, the stronger the association of mass media tenor with firm performance – specifically, firm value. We focus on firm value because both signaling theory and AST indicate that firm-generated and mass media signals shape how outsiders evaluate firm attributes, conduct and thus value (Carroll, 2009; Zavyalova *et al.*, 2012). Integrating signaling theory’s premise that firm-generated cues lose diagnostic value when outsiders suspect self-presentation with AST’s account of why salient, accessible media tenor commands disproportionate interpretive weight, we expect the magnitude of the tenor gap itself to be value-relevant. Accordingly, we propose:

H1a. The effect of mixed affective messages on firm value depends on the gap between media and firm 10-K tenor; the greater the gap, the stronger the association with firm value (either positive or negative).

H1 provides an important baseline exploration of tenor gaps, but does not look at the specific direction of the emotional tone gap between mass media reporting and firm 10-K tenor; the impact of the gap also depends on the specific tenor it reflects, explored next.

As [Coleman and Wu \(2010\)](#) note, negative and positive emotions influence judgment differently. Negative emotions are more structurally complex than positive emotions and are processed differently ([Fiske and Taylor, 1984](#); [Watson et al., 1992](#)). Evidence shows that negative information is given more weight than positive information, producing a negativity bias ([Petty and Wegener, 1998](#); [Skowronski and Carlston, 1989](#)), and is therefore weighted more heavily in information processing ([Coleman and Wu, 2010](#)). This pattern is also evident in AST research ([Hester and Gibson, 2003](#); [Wanta et al., 2004](#)): negative reporting not only attracts more attention but also generates more negative affective judgment regarding focal actors. The directional asymmetry has a second basis grounded in the credibility logic developed above.

Because firms have well-documented incentives to present favorable narratives in formal disclosures ([Edmans et al., 2017](#); [Graham et al., 2005](#); see also [Drover et al., 2018](#)), positive 10-K tenor is interpretively expected and therefore relatively uninformative as a stand-alone cue ([Loughran and McDonald, 2016](#)). Negative cues, by contrast, are interpretively unexpected from firms – the well-established “bad news withholding” literature shows that managers systematically suppress unfavorable information until such suppression becomes untenable ([Kim et al., 2011](#)). When media tenor is more negative than firm tenor, outsiders are simultaneously presented with the more diagnostic affective signal (negative information) from the more credible and relatively less biased source (mass media), producing a compounding effect on firm valuation. This dual mechanism – negativity information amplified by a more credible source relative to firm signal – explains why a negative tone gap should map onto firm value more strongly than a positive one of equivalent magnitude. Extending this logic to tenor-incongruent messages, we suggest that when forming impressions of firm value, a more negative tone gap will lead to more negative firm judgment and thus reduce firm value, particularly when corporate mass media reporting carries a more negative tenor given its agenda-setting capacity. We thus propose:

H1b. A more negative media tone relative to firm 10-K tenor is associated with lower firm value.

Temporal order of affective cues

Beyond concurrent misalignment, the timing of messages matters. Mass media provides a continuous stream of information, while 10-K reports are annual and released at a single point in time. Outsiders are therefore primed by earlier media coverage when interpreting later firm disclosures. Agenda-setting scholarship notes that mass media both attract attention to firms and shapes how firms are judged ([Etter et al., 2018](#); [Hadani et al., 2021](#); [Roulet, 2020](#)). When media reports on firms and opines on them through tenor, such attention and affect may serve as a cognitive anchor through which later information is evaluated. We refer to this as affective information salience: the idea that prior emotional tone shapes interpretations of subsequent disclosures. This logic is consistent with research on anchoring effects in judgment under uncertainty ([Tversky and Kahneman, 1974](#); [Furnham and Boo, 2011](#)), which shows that initial reference points can exert disproportionate influence on subsequent assessments even when later information is more recent or more formal. Applied to corporate information environments, the steady accumulation of media tenor over the year or months before the 10-K form release functions as a reference point against which the discrete 10-K disclosure is evaluated, rather than as mere background information to be processed independently. Past media tenor establishes expectations about what the 10-K should convey; the 10-K's arrival activates a comparison between expectation and disclosure ([Sanbonmatsu et al., 1992](#)). Where past media tenor and current 10-K tenor align, the disclosure confirms the established affective baseline and adds little new evaluative content. Where they diverge, the gap itself becomes the focal informational object: outsiders must reconcile the two, and they do so by re-weighting the credibility of each source in light of their inconsistency.

If later tenor – such as that gleaned through 10-K reporting – does not align with the affective anchor established by prior mass media reporting, it is likely to be discounted, given both the salience of past signals and the importance of mass media as a credible and legitimate source of corporate information (Deephouse, 2000). Drawing again on agenda-setting theory, we argue that prior media tone establishes an affective baseline against which firm disclosures are evaluated. This temporal prediction again integrates the two theories: signaling theory explains why a later, self-interested firm cue is discounted, while AST explains why prior, salient media tenor anchors evaluation. The impact of previous media tone may therefore outweigh that of concurrent 10-K tone, leading us to propose:

H2a. The gap between past media tenor and current firm 10-K tenor influences firm value; the larger the gap, the stronger the association with firm value (either positive or negative).

As with concurrent gaps, the specific tenor of past mass media reporting matters. Because mass media tenor influences firm judgment and social evaluations, and because negative media tenor has been shown to negatively affect firm evaluation and judgment (Hadani *et al.*, 2021; Roulet, 2020), it stands to reason that previous negative media tenor relative to a subsequent 10-K will outweigh more positive 10-K tenor. This pattern is likely because such incongruence may suggest that the firm is too optimistic about its finances and characteristics relative to outsiders (mass media). Because firms benefit from giving a more positive impression – as noted explicitly by signaling theory (Certo *et al.*, 2001) – such firm-originated signals are likely to be discounted when previous mass media signals do not agree in affective valence. Two further considerations sharpen this prediction.

First, when a firm follows a period of negative media coverage with a positive 10-K tenor, the disclosure is likely to be interpretable as an impression-management response: an attempt to counter unfavorable external narratives through self-presentation in the 10-K formal disclosure (Bolino *et al.*, 2008; Brennan and Merkl-Davies, 2013). Research on corporate impression management documents that managers strategically modulate disclosure tone in response to adverse external assessments – through optimistic language, attention shifts and selective emphasis (Brennan *et al.*, 2009). Yet, outsiders may become aware of these tactics and discount disclosures that appear to be deployed for narrative-correction rather than substantive updating (Mercer, 2004). The contrast between positive present tenor and past negative tenor alerts outsiders to the possibility of impression management motives. Second, this asymmetry is reinforced by attribution dynamics: when a firm's positive disclosure conflicts with prior negative external signals, outsiders are more likely to attribute the inconsistency to firm-side bias than to media error, because attributions of dishonesty or self-interest are more readily assigned to actors with clear motives to misrepresent, such as firms' own disclosures (Jones and Davis, 1965; Pornpitakpan, 2004). The combined effect of impression-management suspicion and attributional asymmetry is that a positive 10-K following a period of negative media coverage is not merely discounted but treated as itself diagnostic of firm conditions less favorable than the disclosure suggests. We thus propose:

H2b. A more negative past media tenor relative to current firm 10-K tenor is associated with lower firm value.

Methods

Sample and data

Our sample consists of publicly traded firms included in the S&P 1500 index over the period 2000–2022. Such firms represent a major segment of the US financial equity market, and both signaling theory research and AST research focus on similar populations. As corporate entities listed in the USA, they are required to file annual Form 10-K reports with the SEC, making them well-suited for examining formal corporate disclosures and their interaction with external information sources. Firm-level financial and accounting data were obtained

from Compustat and merged with the Thomson Reuters Refinitiv MarketPsych (TRRM) data set and institutional ownership data (13F filings). After merging across data sets and applying data availability constraints, the final sample includes 1,125 firms and approximately 23,000 firm-year observations.

Measures

Dependent variables. We use two widely used measures of firm performance in management and strategy research. The first is end-of-year market value, a financial market measure reflecting anticipated future performance (Castellaneta *et al.*, 2017; Cho and Pucik, 2005). The second is Tobin's Q, a widely used indicator of firm performance and growth potential that compares market and book value (Alwaysheh *et al.*, 2020; Singh *et al.*, 2018).

Independent variables. Our independent variables capture the relative tenor of firms' 10-K filings and mass media coverage addressing similar content during the same reporting period. Because 10-K reports cover one year, we analyze media reports published prior to the filing date. Annual 10-K reports – typically submitted 60–75 days after the fiscal year end – include information on corporate history, operations, risk factors, financial data, products and services, financial statements, auditor reports and management discussion and analysis.

Firm 10-K tenor. We measured the affective tone of 10-K filings using the widely validated Loughran and McDonald (2011) financial sentiment dictionary. We downloaded all available 10-K filings for sample firms beginning in 2000 and analyzed each document in its entirety – consistent with prior research – to avoid omitting relevant semantic information and to enable comparison with diverse media content. Filings were obtained from the SEC's EDGAR full-text repository and bulk downloaded. We retained annual 10-K filings (including 10-K405 forms) and matched each to its corresponding fiscal year, excluding amendments (10-K/A) and duplicate submissions to avoid double-counting. Prior to scoring, we stripped HTML markup, exhibits and embedded financial-statement tables so that the affective measure reflects narrative disclosure rather than tabular data. Using the Loughran and McDonald (2011) dictionary, we counted words appearing in the positive and negative lists to generate two measures of 10-K tenor. These measures were standardized by firm-year to enable comparison with media tenor. To avoid conflating timing effects, we excluded late 10-K submissions, since such delays may signal managerial or financial problems (Cao *et al.*, 2016).

Mass media tenor. Mass media sentiment was measured using the TRRM data set, which provides sentiment-based analyses of firm-related news articles compiled by Thomson Reuters and Lexis-Nexis from more than 2,000 online and print sources. Using natural language processing, the data set evaluates affective and evaluative language regarding corporate activities and stakeholder perceptions. Prior studies have validated these measures as indicators of firm-related affective evaluation (Daszyńska-Żygadło *et al.*, 2014; Griffith *et al.*, 2020; Harmon, 2019; Michaelides *et al.*, 2015; Shen *et al.*, 2017). Media sentiment measures were derived from TRRM categories including innovation, performance, risk, volatility, stock price movements, valuation, accounting judgment, products, labor issues, mergers and acquisitions, partnerships, management and litigation. We aggregated these items into a single media tenor measure by calculating the weighted average sentiment across categories (sentiment value divided by the number of news mentions per firm-year). Categories with no mentions were excluded from the combined measure. The resulting media tenor index was standardized (mean = 0, SD = 1), as was the 10-K tenor measure.

Concurrent tenor gaps. We constructed two measures of concurrent tenor gaps: an overall tenor gap and a negative tenor gap. These capture media reporting during the 60 days

preceding the 10-K submission, using January 1 as the starting point for the reporting year. For example, if a 10-K was filed in February 2020, we examined media coverage from January 1, 2020 through the week prior to filing. This window captures salient reporting while avoiding confounds related to year turnover and post-filing coverage. The overall tenor gap equals the standardized media tenor minus the standardized 10-K tenor. The negative tenor gap equals the standardized negative media tenor minus the standardized negative 10-K tenor, net of positive tenor.

Temporal tenor gaps. We also constructed two temporal gap measures based on media coverage during the 12 months preceding the 10-K filing. For example, if a 10-K was filed in March 2020, we aggregated TRRM news items from March 2019 through February 2020 using the same sentiment categories described above. We calculated a standardized weighted-average sentiment measure and then created two temporal gap variables: (1) the difference between past aggregate media tenor and current 10-K tenor, and (2) the difference between past negative media tenor and current negative 10-K tenor.

Controls. We include several controls to account for alternative explanations. We control for year and industry effects (dummy coded) and for 10-K file size as a proxy for the amount of disclosed information. We also control for media attention, using the total number of firm-level media mentions per firm-year in TRRM, and for media information uncertainty using a TRRM measure capturing news language that signals uncertainty about the focal firm. Additional firm-level controls include firm size (log of employees), research and development (R&D) expenditures and marketing expenditures as proxies for differentiation and visibility. We also include governance controls: institutional ownership, institutional ownership dispersion (HHI) and board independence. Finally, we control for financial information asymmetry using each firm's average annual bid-ask spread, which captures information asymmetry in financial markets (Easley and O'Hara, 2004; Devos *et al.*, 2019). In total, the models include 12 control variables; the generalized method of moment (GMM) specification also includes a lagged dependent variable, resulting in 13 controls per model.

Analytical strategy

Our data set is an unbalanced panel and may present endogeneity concerns. To address potential endogeneity and omitted variable bias, we used a first-difference GMM dynamic panel estimator (Arellano and Bond, 1991; Wooldridge, 2002). This approach is appropriate for three reasons. First, our data set includes firms with varying observation lengths. Second, firm performance and communication tone may be jointly determined. Third, prior firm performance may influence current outcomes. The GMM estimator addresses these concerns by first-differencing the data to remove firm-specific effects and using lagged variables as instruments for differenced variables (Baum *et al.*, 2003; Ullah *et al.*, 2018). All models include a lagged dependent variable, capturing persistence in firm performance.

GMM automatically excludes multicollinear variables. As a diagnostic check, pooled ordinary least squares models with industry, year and firm fixed effects yielded variance inflation factors (VIFs) below 3 (mean < 1), well below the threshold of 10 (Chatterjee and Price, 1991).

Results

Table 1 presents descriptive statistics and correlations for all variables. Tables 2 and 3 report the main regression results, and Table 4 presents post hoc analyses.

Table 1 Summary statistics and bivariate correlations of variables

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Market value	38215	11584	–														
2. Tobin's Q	0.04	0.12	0.04	–													
3. 10-K size ^a	8744	11733	0.11	–0.04	–												
4. Firm size	1.78	1.66	0.35	–0.10	0.17	–											
5. Media visibility	19	84	0.69	0.02	0.07	–0.11	–										
6. Media uncertainty	–0.07	0.06	–0.09	0.01	–0.05	0.17	–0.07	–									
7. R&D expenditures	216	1020	0.77	0.03	0.08	0.22	0.56	–0.07	–								
8. MKT expenditures	95	496	0.52	0.01	0.07	0.28	0.30	–0.06	0.50	–							
9. Institutional ownership	0.74	0.23	0.05	0.02	0.12	0.28	0.36	–0.08	0.56	0.46	–						
10. Inst. Ownership HHI	0.07	0.10	–0.06	0.01	0.00	–0.30	–0.04	0.05	–0.07	–0.07	–0.14	–					
11. Board independence	9.32	2.26	0.27	0.06	0.19	0.57	0.10	–0.06	0.19	0.25	0.36	–0.02	–				
12. Bid ask spread	0.27	0.10	0.08	0.03	0.16	0.27	0.06	0.05	0.05	0.06	0.10	–0.31	0.17	–			
13. Overall tenor gap	0.06	1.06	0.03	0.01	0.25	–0.13	0.04	0.02	0.06	–0.01	–0.01	0.08	–0.02	0.04	–		
14. Negative tenor gap	–0.09	1.07	–0.03	–0.03	0.30	–0.10	0.07	–0.02	0.07	–0.01	0.00	0.07	–0.02	0.07	0.89	–	
15. Overall tenor gap (past)	–0.16	1.09	–0.03	–0.02	–0.28	–0.02	–0.06	–0.03	–0.06	–0.05	0.01	0.07	0.03	–0.05	–0.90	0.92	–
16. Negative tenor gap (past)	–0.17	1.08	0.01	0.01	0.29	0.01	0.06	0.03	0.06	0.06	0.00	0.08	–0.03	0.06	0.88	0.89	0.93

Note(s): ^aIn MBs. $n = 23,116$ – $21,028$. Correlations $\geq |0.03|$ are significant at $p \leq 0.05$. These are list wise per dyad numbers which can vary relative to the regression models that include all variables side by side

Source(s): Authors' own work

Table 2 The association of mixed affective tenor on firm value and Tobin's Q– concurrent measures

Variables Models	Control	Market value Model 1	Model 2	Control	Tobin's Q Model 3	Model 4
Lagged market value or Tobin's Q	0.96**** (0.10)	0.96**** (0.10)	0.96**** (0.10)	−0.48**** (0.01)	−0.47**** (0.01)	−0.49**** (0.01)
10-K size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.03)	0.00 (0.02)	0.00 (0.01)
Media visibility	−58**** (3.1)	−51**** (3.2)	−56**** (3.1)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Media uncertainty	−717 (919)	−712 (920)	−809 (918)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Firm size	105 (382)	119 (384)	118 (366)	0.01**** (0.00)	0.01**** (0.00)	0.02**** (0.00)
R&D expenditures	18*** (3.3)	18*** (3.3)	18*** (3.3)	0.01 (0.02)	0.00 (0.00)	0.00 (0.00)
Marketing expenditures	−5 (6.3)	−9**** (2.1)	−9**** (2.2)	0.02 (0.04)	0.03 (0.05)	0.02 (0.04)
Institutional ownership	0.01**** (0.00)	0.005**** (0.00)	0.01**** (0.00)	0.01**** (0.00)	0.02**** (0.00)	0.01**** (0.00)
Inst. owners dis.	−73 (1460)	−20 (1522)	−10 (1461)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Board independence	−93 (196)	−92 (102)	−93 (102)	−0.00* (0.00)	−0.00* (0.00)	−0.01* (0.00)
Bid ask spread	−35988* (18023)	−35770* (16044)	−35588† (21027)	0.39**** (0.05)	0.40**** (0.05)	0.40**** (0.05)
Overall tenor gap		582**** (145)			0.002**** (0.00)	
Negative tenor gap			−365* (147)			−0.001** (0.00)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi square	39256****	39230****	39011****	23233****	23211****	23206****
Observations	23,116	23,113	23,107	23,116	23,113	23,113
AR = 2	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$
Difference in Sargan test;		$p > 0.05$	$p > 0.05$		$p > 0.05$	$p > 0.05$
C statistic significance						

Note(s): Robust standard errors are in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and **** $p < 0.0001$

Source(s): Authors' own work

Hypothesis testing

H1a predicts that the magnitude of tenor incongruence between mass media reporting and firm 10-K disclosures is associated with firm value, such that larger differences strengthen the association with firm performance. The results provide strong support for this prediction. The overall tenor gap is positively and significantly associated with both market value ($\beta = 582$, $p < 0.0001$; Model 1, Table 2) and Tobin's Q ($\beta = 0.002$, $p < 0.0001$; Model 3, Table 2). These findings indicate that greater divergence between media and firm tone amplifies the relationship between media sentiment and firm valuation. *H1a* is therefore supported.

H1b predicts that when mass media tone is more negative than firm disclosure tone, greater negative tenor incongruence is associated with lower firm value. Consistent with this prediction, the negative tone gap is significantly associated with lower market value ($\beta = -365$, $p < 0.05$; Model 2, Table 2) and lower Tobin's Q ($\beta = -0.001$, $p < 0.01$; Model 4, Table 2). These results suggest that negative discrepancies in media tone disproportionately reduce firm valuation. *H1b* is supported.

H2a extends this logic to prior media coverage, predicting that the gap between past media tenor and current firm 10-K tenor influences firm value such that larger gaps strengthen the association with firm value. The results support this hypothesis. The temporal tone gap is positively and significantly related to market value ($\beta = 640$, $p < 0.0001$; Model 5, Table 3) and Tobin's Q ($\beta = 0.004$, $p < 0.0001$; Model 7, Table 3). These findings indicate that prior media sentiment plays a significant role in shaping how stakeholders evaluate firm disclosures. *H2a* is supported.

H2b predicts that more negative past media tenor relative to current firm 10-K tenor is associated with lower firm value. The findings again support this prediction. The negative temporal tenor gap is significantly associated with lower market value ($\beta = -536$, $p < 0.001$; Model 6, Table 3) and lower Tobin's Q ($\beta = -0.002$, $p < 0.001$; Model 8, Table 3). These results reinforce the asymmetric influence of negative media sentiment, particularly when it precedes firm disclosures. *H2b* is supported.

Table 3 The association of mixed affective tenor on firm value and Tobin's Q – lagged measures

Variables Models	Control	Market value Model 5	Model 6	Control	Tobin's Q Model 7	Model 8
Lagged market value or Tobin's Q	0.96*** (0.10)	0.95*** (0.10)	0.96*** (0.10)	–0.48*** (0.01)	–0.45*** (0.01)	–0.47*** (0.00)
10-K size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.03)	0.00 (0.00)	0.00 (0.01)
Media visibility	–58*** (3.1)	–50*** (3.1)	–51*** (3.2)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Media uncertainty	–717 (919)	–799 (904)	–782 (966)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Firm size	105 (382)	105 (341)	118 (366)	0.01*** (0.00)	0.01*** (0.00)	0.02*** (0.00)
R&D expenditures	18** (3.3)	17*** (2.9)	17*** (3.1)	0.01 (0.02)	0.00 (0.00)	0.00 (0.00)
Marketing expenditures	–5 (6.3)	–8*** (2.2)	–9*** (1.8)	0.02 (0.04)	0.02 (0.04)	0.03 (0.05)
Institutional ownership	0.01*** (0.00)	0.005*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.02*** (0.00)	0.01*** (0.00)
Inst. owners dis.	–73 (1460)	–14 (1486)	–18 (1507)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Board independence	–93 (196)	–90 (95)	–99 (110)	–0.00* (0.00)	–0.00* (0.00)	–0.01* (0.00)
Bid ask spread	–35988* (18023)	–34662* (15801)	–37667* (18,488)	0.39*** (0.05)	0.42*** (0.04)	0.44*** (0.03)
Overall tenor gap (lagged media)		640*** (122)	–536*** (109)		0.004*** (0.00)	–0.002*** (0.00)
Negative tenor gap (lagged media)						
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi square	39256***	39230***	392017***	23233***	23211***	23206***
Observations	23,116	21,044	21,028	23,116	21,044	21,028
AR = 2	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$
Difference in Sargan test; C statistic significance		$p > 0.05$	$p > 0.05$		$p > 0.05$	$p > 0.05$

Note(s): Robust standard errors are in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and **** $p < 0.0001$

Source(s): Authors' own work

Table 4 The association of mixed affective tenor on firm value and Tobin's Q– positive gap measures

Variables	Market value		Tobin's Q	
	Model 9 - Concurrent Gap	Model 10 - Lagged Gap	Model 11 - Concurrent Gap	Model 12 - Lagged Gap
Lagged market value or Tobin's Q	0.88*** (0.10)	0.84*** (0.10)	0.36*** (0.02)	−0.38*** (0.01)
10-K size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)
Media visibility	−52*** (3.2)	−52*** (3.2)	0.00 (0.00)	0.00 (0.00)
Media uncertainty	−801 (902)	−810 (919)	−0.00 (0.00)	−0.00 (0.00)
Firm size	128 (381)	137 (385)	0.01*** (0.00)	0.01*** (0.00)
R&D expenditures	15*** (2.1)	16*** (3.2)	0.01 (0.05)	0.01 (0.03)
Marketing expenditures	−6*** (0.76)	−4*** (0.55)	−0.00 (0.00)	−0.01 (0.04)
Institutional ownership	0.01*** (0.00)	0.005*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Inst. owners dis.	−40 (1461)	−58 (1367)	−0.00 (0.00)	0.01 (0.00)
Board independence	−90 (102)	−82 (122)	−0.00* (0.00)	−0.00* (0.00)
Bid ask spread	−33224* (13911)	−31366* (10207)	−0.40* (0.03)	0.38*** (0.03)
Positive tenor gap	−559*** (157)		−0.001*** (0.00)	
Positive tenor gap (lagged)		−371*** (124)		−0.005*** (0.001)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Wald chi-square	17124***	19571***	16988***	17442***
Observations	5,688	5,434	5,688	5,434
AR = 2	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$
Difference in Sargan test;	$p > 0.05$	$p > 0.05$	$p > 0.05$	$p > 0.05$
C statistic significance				

Note(s): Robust standard errors are in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and **** $p < 0.0001$

Source(s): Authors' own work

Diagnostic tests

We assessed the autoregressive structure and instrument validity of the GMM models. First, we used the Hansen test and the Stata `abond` postestimation command to examine serial correlation in the first-differenced residuals using the Arellano–Bond test. Across models, the first-order statistic AR(1) was significant – rejecting the null hypothesis of no first-order correlation – while AR(2) was not significant ($p > 0.3$). Accordingly, we specified AR(2) in all models, including the post hoc analyses. Second, we examined the exogeneity of the instruments using Baum *et al.* (2003) C-statistic test. Comparing main-effects models with control models and full models with main-effects models, the C statistic did not reject the null hypothesis ($p > 0.5$), indicating instrument exogeneity and thus appropriate and valid instruments. VIFs were well below accepted thresholds, suggesting that multicollinearity is not a concern. Diagnostic results are reported at the bottom of the regression tables.

Post hoc analyses

Positive tenor gap patterns. The primary analyses examined overall and negative tenor gaps. Because positive tenor gaps would intuitively be expected to increase firm value, we did not initially hypothesize their effects. However, we conducted additional analyses to test this assumption. We constructed two new measures capturing the gap between positive mass media tenor and firm tenor, using the same underlying items but restricted to positive values. These measures were calculated for both concurrent and prior media reporting. We then estimated models predicting market value and Tobin's Q (Table 4) based on the firms in which mass media tenor is more positive than the firm's. As expected, the number of firm-year observations is smaller for these analyses.

Contrary to expectations, both concurrent and prior positive tenor gaps are negatively associated with market value and Tobin's Q ($\beta = -559$, $p < 0.0001$; Model 9; $\beta = -0.001$,

$p < 0.0001$; Model 11; $\beta = -371$, $p < 0.001$; Model 10; $\beta = -0.005$, $p < 0.001$; Model 12, Table 4). These findings suggest that even favorable discrepancies – where media coverage is more positive than firm disclosures – may introduce uncertainty or skepticism among stakeholders.

System generalized method of moment robustness test. To assess robustness, we estimated additional models using the system GMM estimator (Arellano and Bover, 1995). The results of the system GMM models are consistent with the main analyses; tables are omitted for brevity but are available on request.

Discussion

This study set out to examine how stakeholders respond to incongruent affective signals across firm disclosures and mass media coverage. An in-depth analysis of 1,125 S&P 1500 firms across more than 20 years finds that mixed tenor messages are significantly associated – positively or negatively – with firm performance, both in market value and Tobin's Q. Post hoc analyses further show that positive media tenor gaps are negatively associated with both performance measures, an unexpected outcome. Overall, the market responds not only to tenor gaps between firm and media reporting but tends to react more strongly to affective signals from external sources – particularly mass media – albeit with caveats. Mapped to our hypotheses, the supported concurrent and temporal gap effects (H1a, H2a) extend signaling theory by showing that tenor is a value-relevant signal, while the negative-gap asymmetries (H1b, H2b) bear out AST's second-level prediction that negative, salient media tenor dominates evaluation. These findings suggest that stakeholders do not evaluate firm communications in isolation. Rather, they interpret firm disclosures relationally, benchmarking them against external information sources and weighting those sources differently depending on perceived credibility, salience and affective content.

Theoretical contributions

This study makes three primary contributions. First, we extend signaling theory by demonstrating that affective tone constitutes a meaningful signal, even in the absence of the direct costs traditionally associated with signal credibility. Prior work has largely emphasized structural or costly signals as carriers of information about firm quality. Our findings challenge this assumption by showing that affective signals – such as tone in 10-K disclosures – have real valuation consequences, particularly when interpreted in conjunction with external information. The study reiterates that the tone of 10-K filings conveys information beyond raw financial data (Boubaker et al., 2019; Feldman et al., 2010; Loughran and McDonald, 2016) and that media reports shape stakeholder evaluations (Carroll, 2011; Deephouse, 2000; Pollock and Rindova, 2003). The juxtaposition of each source's relative tenor meaningfully impacts performance. In this way, we refine signaling theory by showing that the informational value of signals depends not only on their intrinsic properties but also on their consistency with signals from other sources. More specifically, our results suggest that signal incongruence triggers a credibility-reweighting process consistent with cognitive dissonance reduction (Festinger, 1957) and source-credibility heuristics (Pornpitakpan, 2004): when firm and media tenor diverge, outsiders do not average the two signals but anchor on the more credible source. This recasts signaling as a relational process in which the diagnostic value of any single signal depends on the broader signal environment in which it is received – an extension that signaling theory's traditional dyadic framing has not adequately captured (Drover et al., 2018).

Second, we advance agenda-setting theory by showing that media effects are contingent on their interaction with firm-generated disclosures. Unlike signaling theory,

which assumes internally generated signals reflect some latent firm quality (Certo *et al.*, 2001), AST emphasizes that mass media signals influence outsider attention and judgment without requiring that the information be novel or uniquely diagnostic. Because stakeholders receive and process multiple signals and because mass media reporting is ubiquitous, its emotional undertones carry significant weight. AST does not assume that corporate mass media reporting is necessarily novel or diagnostic; rather, its focus is on the ability of corporate news to direct attention and to determine how outsiders view and feel about firms (Carroll, 2011; Deephouse, 2000; Pollock and Rindova, 2003; Zavyalova *et al.*, 2012, 2017). Mass media emotional signals impact market value without necessarily being “diagnostic.” Our results indicate that media effects are relational and comparative: the impact of media tone depends on how it aligns – or conflicts – with firm disclosures. This highlights that agenda-setting operates within a broader multi-source information environment, where stakeholders integrate and reconcile competing cues.

Third, we contribute to research on information environments by identifying affective incongruence as a critical mechanism shaping firm valuation. Existing studies have examined either firm disclosures or media coverage in isolation, implicitly assuming informational coherence. By contrast, we show that inconsistency across sources plays a central role in shaping stakeholder judgments. This advances research on firms’ media environment by highlighting how mixed and incongruent messages impact firm value and how firm outsiders resolve incongruence by focusing on more accessible mass media tenor signals. This pattern may also reflect a bias toward anchoring on signals based on availability. Research on information processing indicates that users prefer and attend to available information (Kliger and Kudryavtsev, 2010); in our context, this implies that mass media’s more easily accessible nature takes precedence over formal firm-generated 10-K reports, despite the documented importance of 10-K reports (Bai *et al.*, 2019). Our temporal results sharpen this contribution by demonstrating that incongruence operates not only synchronously but sequentially: prior media tenor establishes an affective reference point against which subsequent disclosures are compared (Tversky and Kahneman, 1974; Sanbonmatsu *et al.*, 1992), and disclosures that diverge from that reference point may invite skepticism rather than acceptance. This temporal logic, combined with the impression-management dynamics that surface when firms attempt to counter unfavorable external narratives (Brennan and Merkl-Davies, 2013; Mercer, 2004), suggests that the cognitive dynamics through which outsiders process firm-related information are fundamentally relational and historically contingent – a perspective that broadens prevailing models of how firms communicate with capital markets.

Interpreting the asymmetry in effects

A key insight from our findings is the asymmetric impact of tenor incongruence. When media coverage is more negative than firm disclosures, firm value is more adversely affected than in the reverse case. Moreover, when mass media tone is more positive than that of the firms’, the combined effect is also negatively associated with firm outcomes. This novel finding indicates – even tentatively – that negative affective signals, whether originating from the firm or mass media, are viewed as more diagnostic or reliable than positive ones, qualifying both signaling theory and AST. We see a clear negativity bias, irrespective of source. From a signaling theory perspective, with its focus on beneficial signals, this implies that there is value in negative signals; from an AST perspective, this implies that not all of its affective signals are equal – some, perhaps the more optimistic ones, may be viewed by firm outsiders as “cheap talk” in the parlance of signaling theory. The asymmetry tracks closely with the dual mechanisms we developed in the hypotheses. The negativity-bias and bad-news-withholding logic (Kothari *et al.*, 2009; Kim *et al.*, 2011) implies that negative cues from any source carry diagnostic weight precisely because they are interpretively unexpected; when they appear, outsiders treat them as evidence that the firm’s underlying conditions are less favorable than nominal disclosure would suggest. Conversely, when media tenor is more positive than firm tenor,

our finding that this configuration is also negatively associated with firm value can be read through the impression-management and attribution logic developed earlier: a comparatively cautious 10-K against more optimistic media coverage may itself signal that the firm holds private information about adverse conditions that the media has not yet detected (Brennan and Merkl-Davies, 2013; Jones and Davis, 1965). In both cases, the operative principle is that the more negative source – whichever it is – is treated as the more diagnostic, consistent with the source-credibility reweighting we theorized as the response to dissonance-inducing signals.

Practical implications

Our findings carry important implications for investor-relations and corporate-communications teams, CFOs and disclosure committees and the investors and analysts who consume these signals. First, assuming that 10-K tone is intentional, there are limits to its narrative-shaping power. While the affective tone of the 10-K may sway some analyst sentiment, it does not serve the firm when it is incongruent with mass media reporting, which is more comprehensive and can be less positive. Mixed affective signals raise practical risks insofar as the market sees through them, as evidenced by the association of mixed messages with performance. Managing disclosure tone in isolation is therefore insufficient: when firm communications are incongruent with prevailing media sentiment, their effectiveness diminishes and may even backfire. Concretely, disclosure teams can benchmark a draft 10-K's tenor against a rolling window of media sentiment – using windows comparable to the 60-day concurrent and 12-month prior periods examined here – and treat a large negative gap as a pre-filing risk indicator rather than raising disclosure optimism to counter it.

Second, the results highlight the importance of monitoring and anticipating media sentiment, particularly in the period leading up to major disclosures. Because prior media coverage shapes how stakeholders interpret subsequent firm communications, misalignment between the two can amplify negative evaluations. This underscores the need for firms to adopt a more integrated communication strategy that considers both internal disclosures and external narratives. Although we did not directly test this, mismatched messaging – especially when firms are positive and media is negative – may draw increased scrutiny. Such contrast could prompt outsiders to question executive motives: Why the discrepancy? Is the firm hiding something? These dynamics introduce reputational and informational risks that executives must consider.

Finally, our findings suggest that negative media coverage poses disproportionate risks when it conflicts with firm messaging. In such cases, attempts to present a more positive tone in formal disclosures may be interpreted skeptically, potentially increasing scrutiny rather than alleviating concerns. Managers should therefore be cautious in adopting overly optimistic tone when external sentiment is unfavorable. As Graham *et al.* (2005) note, many executives are willing to sacrifice economic value to manage investor perceptions; however, media outlets operate independently of such incentives. This disconnect between executive-controlled narratives and journalistic scrutiny presents an opportunity to explore which signals dominate under what conditions.

Broader implications and future research

Beyond the immediate context, this study highlights the growing importance of multi-source information environments in shaping stakeholder judgments. Although our analysis focuses on US firms and 10-K disclosures, similar dynamics are likely to arise in other institutional contexts where firms communicate alongside independent media and digital platforms. Future research could extend this work by examining how these dynamics vary across different regulatory environments, media systems or communication channels, as well as by exploring how other forms of incongruence – such as discrepancies in factual content – interact with affective tone.

Conclusion

To the best of the authors' knowledge, this is the first study to empirically document the performance consequences of incongruent affective messages between firm disclosures and mass media for publicly traded firms' 10-K reporting. The findings highlight the critical role media plays in reducing information asymmetries and shaping firm outcomes. For both executives and investors, the presence and alignment of affective signals across sources represent an important influence on firm performance.

Keywords:
Agenda-setting theory,
Mass media news,
Tenor,
Signaling,
Market value,
Infomediaries

References

- Almazan, A., Banerji, S. and De Motta, A. (2008), "Attracting attention: cheap managerial talk and costly market monitoring", *The Journal of Finance*, Vol. 63 No. 3, pp. 1399-1436.
- Arellano, M. and Bond, S. (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *The Review of Economic Studies*, Vol. 58 No. 2, pp. 277-297.
- Arellano, M. and Bover, O. (1995), "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, Vol. 68 No. 1, pp. 29-51.
- Alwaysheh, A., Heron, R.A., Perry, T. and Wilson, J.I. (2020), "On the relation between corporate social responsibility and financial performance", *Strategic Management Journal*, Vol. 41 No. 6, pp. 965-987.
- Bai, X., Dong, Y. and Hu, N. (2019), "Financial report readability and stock return synchronicity", *Applied Economics*, Vol. 51 No. 4, pp. 346-363.
- Baker, M. and Wurgler, J. (2013), "Behavioral corporate finance: an updated survey", In Constantanides, G.M., Harris, M. and Stulz, R.M. (Eds), *Handbook of the Economics of Finance*, Elsevier, Vol. 2A, pp. 357-424, doi: [10.1016/B978-0-44-453594-8.00005-7](https://doi.org/10.1016/B978-0-44-453594-8.00005-7).
- Barth, M.E., Landsman, W.R. and Taylor, D.J. (2024), "The role of disclosure tone in capital markets", *Journal of Accounting and Economics*, *Forthcoming*.
- Baum, C.F., Schaffer, M.E. and Stillman, S. (2003), "Instrumental variables and GMM: estimation and testing", *The Stata Journal: Promoting Communications on Statistics and Stata*, Vol. 3 No. 1, pp. 1-31.
- Bergstresser, D., Desai, M. and Rauh, J. (2006), "Earnings manipulation, pension assumptions, and managerial investment decisions", *Quarterly Journal of Economics*, Vol. 121 No. 1, pp. 157-195.
- Bodnaruk, A., Loughran, T. and McDonald, B. (2015), "Using 10-K text to gauge financial constraints", *Journal of Financial and Quantitative Analysis*, Vol. 50 No. 4, pp. 623-646.
- Bolino, M.C., Kacmar, K.M., Turnley, W.H. and Gilstrap, J.B. (2008), "A multi-level review of impression management motives and behaviors", *Journal of Management*, Vol. 34 No. 6, pp. 1080-1109.
- Boubaker, S., Gounopoulos, D. and Rjiba, H. (2019), "Annual report readability and stock liquidity", *Financial Markets, Institutions & Instruments*, Vol. 28 No. 2, pp. 159-186.
- Brennan, N.M. and Merkl-Davies, D.M. (2013), "Accounting narratives and impression management", in Jack, L., Davison, J. and Craig, R. (Eds), *The Routledge Companion to Accounting Communication*, Routledge, pp. 109-132, doi: [10.4324/9780203593493.ch8](https://doi.org/10.4324/9780203593493.ch8).
- Brennan, N.M., Guillaumon-Saorin, E. and Pierce, A. (2009), "Methodological insights: impression management: developing and illustrating a scheme of analysis for narrative disclosures – a methodological note", *Accounting, Auditing & Accountability Journal*, Vol. 22 No. 5, pp. 789-832.
- Busenitz, L.W., Fiet, J.O. and Moesel, D.D. (2005), "Signaling in venture capitalist–new venture team funding decisions: does it indicate long-term venture outcomes?", *Entrepreneurship Theory and Practice*, Vol. 29 No. 1, pp. 1-12.
- Cao, J., Chen, F. and Higgs, J.L. (2016), "Late for a very important date: financial reporting and audit implications of late 10-K filings", *Review of Accounting Studies*, Vol. 21 No. 2, pp. 633-671.
- Carroll, C.E. (2004), "How the mass media influence perceptions of corporate reputation: exploring agenda-setting effects within business news coverage", Doctoral dissertation, University of Texas at Austin.
- Carroll, C.E. (2009), "The relationship between firms' media favorability and public esteem", *Public Relations Journal*, Vol. 3 No. 4, pp. 1-30.

- Carroll, C.E. (Ed.) (2011), *Corporate Reputation and the News Media: Agenda-setting within Business News Coverage in Developed, Emerging, and Frontier Markets*, Routledge, doi: [10.4324/9780203868584](https://doi.org/10.4324/9780203868584).
- Carroll, C.E. and McCombs, M. (2003), "Agenda-setting effects of business news on the public's images and opinions about major corporations", *Corporate Reputation Review*, Vol. 6 No. 1, pp. 47-57.
- Castellaneta, F., Conti, R. and Kacperczyk, A. (2017), "Money secrets: how does trade secret legal protection affect firm market value? Evidence from the Uniform Trade Secret Act", *Strategic Management Journal*, Vol. 38 No. 4, pp. 834-853.
- Certo, S.T. (2003), "Influencing initial public offering investors with prestige: signaling with board structures", *The Academy of Management Review*, Vol. 28 No. 3, pp. 432-446.
- Certo, S.T., Daily, C.M. and Dalton, D.R. (2001), "Signaling firm value through board structure: an investigation of initial public offerings", *Entrepreneurship Theory and Practice*, Vol. 26 No. 2, pp. 33-50.
- Chatterjee, S. and Price, B. (1991), *Regression Analysis by Example*, 2nd ed., Wiley.
- Cho, H.-J. and Pucik, V. (2005), "Relationship between innovativeness, quality, growth, profitability, and market value", *Strategic Management Journal*, Vol. 26 No. 6, pp. 555-575.
- Cohen, L., Malloy, C.J. and Nguyen, Q. (2020), "Lazy prices", *The Journal of Finance*, Vol. 75 No. 3, pp. 1371-1415.
- Coleman, R. and Wu, H.D. (2010), "Proposing emotion as a dimension of affective agenda setting: separating affect into two components and comparing their second-level effects", *Journalism & Mass Communication Quarterly*, Vol. 87 No. 2, pp. 315-327.
- Connelly, B.L., Certo, S.T., Ireland, R.D. and Reutzel, C.R. (2011), "Signaling theory: a review and assessment", *Journal of Management*, Vol. 37 No. 1, pp. 39-67.
- Connelly, B.L., Certo, S.T., Reutzel, C.R., DesJardine, M.R. and Zhou, Y.S. (2025), "Signaling theory: state of the theory and its future", *Journal of Management*, Vol. 51 No. 1, pp. 24-61.
- Daines, R., McQueen, G.R. and Schonlau, R.J. (2018), "Right on schedule: CEO option grants and opportunism", *Journal of Financial and Quantitative Analysis*, Vol. 53 No. 3, pp. 1025-1058.
- Daszyńska-Żygadło, K., Szpulak, A. and Szyszka, A. (2014), "Investor sentiment, optimism and excess stock market returns: evidence from emerging markets", *Business and Economic Horizons*, Vol. 10 No. 4, pp. 362-373.
- Deephouse, D.L. (2000), "Media reputation as a strategic resource: an integration of mass communication and resource-based theories", *Journal of Management*, Vol. 26 No. 6, pp. 1091-1112.
- Devos, E., Ong, S. and Spieler, A. (2019), "Information asymmetry and REIT capital market access", *The Journal of Real Estate Finance and Economics*, Vol. 59 No. 1, pp. 90-110.
- Drover, W., Wood, M.S. and Corbett, A.C. (2018), "Toward a cognitive view of signalling theory: individual attention and signal set interpretation", *Journal of Management Studies*, Vol. 55 No. 2, pp. 209-231.
- Easley, D. and O'Hara, M. (2004), "Information and the cost of capital", *The Journal of Finance*, Vol. 59 No. 4, pp. 1553-1583.
- Edmans, A., Gabaix, X. and Jenter, D. (2017), "Executive compensation: a survey of theory and evidence", in Hermalin, B.E. and Weisbach, M.S. (Eds), *The Handbook of the Economics of Corporate Governance*, Elsevier, Vol. 1, pp. 383-539, doi: [10.1016/bs.hecg.2017.11.010](https://doi.org/10.1016/bs.hecg.2017.11.010).
- Eisenhardt, K.M. (1989), "Agency theory: an assessment and review", *The Academy of Management Review*, Vol. 14 No. 1, pp. 57-74.
- Engelberg, J.E. and Parsons, C.A. (2011), "The causal impact of media in financial markets", *The Journal of Finance*, Vol. 66 No. 1, pp. 67-97.
- Etter, M., Colleoni, E., Illia, L., Meggiorin, K. and D'Eugenio, A. (2018), "Measuring organizational legitimacy in social media: assessing citizens' judgments with sentiment analysis", *Business & Society*, Vol. 57 No. 1, pp. 60-97.
- Farrell, J. and Rabin, M. (1996), "Cheap talk", *Journal of Economic Perspectives*, Vol. 10 No. 3, pp. 103-118.
- Festinger, L. (1957), *A Theory of Cognitive Dissonance*, Stanford University Press.

- Feldman, R., Govindaraj, S., Livnat, J. and Segal, B. (2010), "Management's tone change, post-earnings announcement drift and accruals", *Review of Accounting Studies*, Vol. 15 No. 4, pp. 915-936.
- Fiske, S.T. and Taylor, S.E. (1984), *Social Cognition*, Addison-Wesley.
- Fombrun, C. and Shanley, M. (1990), "What's in a name? Reputation building and corporate strategy", *Academy of Management Journal*, Vol. 33 No. 2, pp. 233-258.
- Furnham, A. and Boo, H.C. (2011), "A literature review of the anchoring effect", *The Journal of Socio-Economics*, Vol. 40 No. 1, pp. 35-42.
- Graham, J.R., Harvey, C.R. and Rajgopal, S. (2005), "The economic implications of corporate financial reporting", *Journal of Accounting and Economics*, Vol. 40 Nos 1-3, pp. 3-73.
- Griffith, J.M., Najand, M. and Shen, J. (2020), "Emotions in the stock market", *Journal of Behavioral Finance*, Vol. 21 No. 1, pp. 42-56.
- Hadani, M., Aksu, B. and Coombes, S. (2021), "Fifteen minutes of fame? The impact of media visibility and media reputation on the relationship between corporate political activity and government contract awards", *Academy of Management Discoveries*, Vol. 7 No. 1, pp. 57-84.
- Harmon, D.J. (2019), "When the fed speaks: arguments, emotions, and the microfoundations of institutions", *Administrative Science Quarterly*, Vol. 64 No. 3, pp. 542-575.
- Harmon-Jones, E. and Mills, J. (2019), "An introduction to cognitive dissonance theory and an overview of current perspectives on the theory", in Harmon-Jones, E. (Ed.), *Cognitive Dissonance: Reexamining a Pivotal Theory in Psychology*, 2nd ed., American Psychological Association, pp. 3-24, doi: [10.1037/0000135-001](https://doi.org/10.1037/0000135-001).
- Hester, J.B. and Gibson, R. (2003), "The economy and second-level agenda setting: a time-series analysis of economic news and public opinion about the economy", *Journalism & Mass Communication Quarterly*, Vol. 80 No. 1, pp. 73-91.
- Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.
- Jones, E.E. and Davis, K.E. (1965), "From acts to dispositions: the attribution process in person perception", in Berkowitz, L. (Ed.), *Advances in Experimental Social Psychology*, Academic Press, Vol. 2, pp. 219-266, doi: [10.1016/S0065-2601\(08\)60107-0](https://doi.org/10.1016/S0065-2601(08)60107-0).
- Kim, H. and Jensen, M. (2014), "Audience heterogeneity and the effectiveness of market signals: how to overcome liabilities of foreignness in film exports?", *Academy of Management Journal*, Vol. 57 No. 5, pp. 1360-1384.
- Kim, J.-B., Li, Y. and Zhang, L. (2011), "Corporate tax avoidance and stock price crash risk: firm-level analysis", *Journal of Financial Economics*, Vol. 100 No. 3, pp. 639-662.
- Kim, Y., Kim, Y. and Zhou, S. (2017), "Theoretical and methodological trends of agenda-setting theory: a thematic analysis of the last four decades of research", *The Agenda Setting Journal*, Vol. 1 No. 1, pp. 5-22.
- Kliger, D. and Kudryavtsev, A. (2010), "The availability heuristic and investors' reaction to company-specific events", *Journal of Behavioral Finance*, Vol. 11 No. 1, pp. 50-65.
- Kothari, S.P., Shu, S. and Wysocki, P.D. (2009), "Do managers withhold bad news?", *Journal of Accounting Research*, Vol. 47 No. 1, pp. 241-276.
- Lamin, A. and Zaheer, S. (2012), "Wall street vs. Main street: firm strategies for defending legitimacy and their impact on different stakeholders", *Organization Science*, Vol. 23 No. 1, pp. 47-66.
- Ledingham, J. A. and Bruning, S. D. (Eds) (2000), *Public Relations as Relationship Management: A Relational Approach to the Study and Practice of Public Relations*, 1st edition, Routledge, New York, NY.
- Loughran, T. and McDonald, B. (2011), "When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks", *The Journal of Finance*, Vol. 66 No. 1, pp. 35-65.
- Loughran, T. and McDonald, B. (2016), "Textual analysis in accounting and finance: a survey", *Journal of Accounting Research*, Vol. 54 No. 4, pp. 1187-1230.
- Luo, Y., Burley, H., Moe, A. and Sui, M. (2019), "A meta-analysis of news media's public agenda-setting effects, 1972-2015", *Journalism & Mass Communication Quarterly*, Vol. 96 No. 1, pp. 150-172.
- McCombs, M. and Reynolds, A. (2002), "News influence on our pictures of the world", in Bryant, J. and Zillmann, D. (Eds), *Media Effects: Advances in Theory and Research*, 2nd ed., Lawrence Erlbaum Associates, pp. 1-18, doi: [10.4324/9781410602428-5](https://doi.org/10.4324/9781410602428-5).

- Mayew, W.J. and Venkatachalam, M. (2012), "The power of voice: managerial affective states and future firm performance", *The Journal of Finance*, Vol. 67 No. 1, pp. 1-43.
- Mercer, M. (2004), "How do investors assess the credibility of management disclosures?", *Accounting Horizons*, Vol. 18 No. 3, pp. 185-196.
- Michaelides, A., Milidonis, A., Nishiotis, G.P. and Papakyriakou, P. (2015), "The adverse effects of systematic leakage ahead of official sovereign debt rating announcements", *Journal of Financial Economics*, Vol. 116 No. 3, pp. 526-547.
- Park, H.D. and Patel, P.C. (2015), "How does ambiguity influence IPO underpricing? The role of the signalling environment", *Journal of Management Studies*, Vol. 52 No. 6, pp. 796-818.
- Pernkopf, K., Latzke, M. and Mayrhofer, W. (2021), "Effects of mixed signals on employer attractiveness: a mixed-method study based on signaling and convention theory", *Human Resource Management Journal*, Vol. 31 No. 2, pp. 392-413.
- Petty, R.E. and Wegener, D.T. (1998), "Attitude change: multiple roles for persuasion variables", in Gilbert, D.T., Fiske, S.T. and Lindzey, G. (Eds), *The Handbook of Social Psychology*, 4th ed., McGraw-Hill, Vol. 1, pp. 323-390.
- Pollock, T.G. and Gulati, R. (2007), "Standing out from the crowd: the visibility-enhancing effects of IPO-related signals on alliance formation by entrepreneurial firms", *Strategic Organization*, Vol. 5 No. 4, pp. 339-372.
- Pollock, T.G. and Rindova, V.P. (2003), "Media legitimation effects in the market for initial public offerings", *Academy of Management Journal*, Vol. 46 No. 5, pp. 631-642.
- Pornpitakpan, C. (2004), "The persuasiveness of source credibility: a critical review of five decades' evidence", *Journal of Applied Social Psychology*, Vol. 34 No. 2, pp. 243-281.
- Roulet, T.J. (2020), *The Power of Being Divisive: Understanding Negative Social Evaluations*, Stanford Business Books, doi: [10.1515/9781503613904](https://doi.org/10.1515/9781503613904).
- Sanbonmatsu, D.M., Kardes, F.R. and Herr, P.M. (1992), "The role of prior knowledge and missing information in multiattribute evaluation", *Organizational Behavior and Human Decision Processes*, Vol. 51 No. 1, pp. 76-91.
- Shen, J., Najand, M., Dong, F. and He, W. (2017), "News and social media emotions in the commodity market", *Review of Behavioral Finance*, Vol. 9 No. 2, pp. 148-168.
- Singh, S., Tabassum, N., Darwish, T.K. and Batsakis, G. (2018), "Corporate governance and Tobin's Q as a measure of organizational performance", *British Journal of Management*, Vol. 29 No. 1, pp. 171-190.
- Skowronski, J.J. and Carlston, D.E. (1989), "Negativity and extremity biases in impression formation: a review of explanations", *Psychological Bulletin*, Vol. 105 No. 1, pp. 131-142.
- Spence, M. (1973), "Job market signaling", *The Quarterly Journal of Economics*, Vol. 87 No. 3, pp. 355-374.
- Spence, M. (2002), "Signaling in retrospect and the informational structure of markets", *American Economic Review*, Vol. 92 No. 3, pp. 434-459.
- Taj, S.A. (2016), "Application of signaling theory in management research: addressing major gaps in theory", *European Management Journal*, Vol. 34 No. 4, pp. 338-348.
- Tetlock, P.C. (2007), "Giving content to investor sentiment: the role of media in the stock market", *The Journal of Finance*, Vol. 62 No. 3, pp. 1139-1168.
- Tetlock, P.C., Saar-Tsechansky, M. and Macskassy, S. (2008), "More than words: quantifying language to measure firms' fundamentals", *The Journal of Finance*, Vol. 63 No. 3, pp. 1437-1467.
- Tversky, A. and Kahneman, D. (1974), "Judgment under uncertainty: heuristics and biases", *Science*, Vol. 185 No. 4157, pp. 1124-1131.
- Ullah, S., Akhtar, P. and Zaefarian, G. (2018), "Dealing with endogeneity bias: the generalized method of moments (GMM) for panel data", *Industrial Marketing Management*, Vol. 71, pp. 69-81.
- Wanta, W. and Ghanem, S.I. (2007), "Effects of agenda setting", in Preiss, R.W., Gayle, B.M., Burrell, N., Allen, M. and Bryant, J. (Eds), *Mass Media Effects Research: Advances through Meta-analysis*, Lawrence Erlbaum Associates, pp. 37-51.
- Wanta, W., Golan, G. and Lee, C. (2004), "Agenda setting and international news: media influence on public perceptions of foreign nations", *Journalism & Mass Communication Quarterly*, Vol. 81 No. 2, pp. 364-377.

Watson, D., Clark, L.A., McIntyre, C.W. and Hamaker, S. (1992), "Affect, personality, and social activity", *Journal of Personality and Social Psychology*, Vol. 63 No. 6, pp. 1011-1066.

Wooldridge, J.M. (2002), *Econometric Analysis of Cross Section and Panel Data*, MIT Press.

Wu, C.-H. and Lin, C.-J. (2017), "The impact of media coverage on investor trading behavior and stock returns", *Pacific-Basin Finance Journal*, Vol. 43, pp. 151-172.

Zavyalova, A., Pfarrer, M.D. and Reger, R.K. (2017), "Celebrity or infamy? The consequences of media narratives about organizational identity", *Academy of Management Review*, Vol. 42 No. 3, pp. 461-480.

Zavyalova, A., Pfarrer, M.D., Reger, R.K. and Shapiro, D.L. (2012), "Managing the message: the effects of firm actions and industry spillovers on media coverage following wrongdoing", *Academy of Management Journal*, Vol. 55 No. 5, pp. 1079-1101.

Further reading

Cohen, A. and Dean, T.J. (2005), "Information asymmetry and investor valuation of IPOs: top management team legitimacy as a capital market signal", *Strategic Management Journal*, Vol. 26 No. 7, pp. 683-690.

Del Gaudio, B.L., Megaravalli, A.V., Sampagnaro, G. and Verdoliva, V. (2020), "Mandatory disclosure tone and bank risk-taking: evidence from Europe", *Economics Letters*, Vol. 186, p. 108531.

Gao, H., Darroch, J., Mather, D. and MacGregor, A. (2008), "Signaling corporate strategy in IPO communication: a study of biotechnology IPOs on the NASDAQ", *Journal of Business Communication*, Vol. 45 No. 1, pp. 3-30.

Gompers, P.A., Ishii, J.L. and Metrick, A. (2003), "Corporate governance and equity prices", *The Quarterly Journal of Economics*, Vol. 118 No. 1, pp. 107-155.

Kang, T., Park, D. and Han, I. (2018), "Beyond the numbers: the effect of 10-K tone on firms' performance predictions using text analytics", *Telematics and Informatics*, Vol. 35 No. 2, pp. 370-381.

Karhikeyan, S.I., Jonsson, S. and Wezel, F.C. (2016), "The travails of identity change: competitor claims and distinctiveness of British political parties, 1970-1992", *Organization Science*, Vol. 27 No. 1, pp. 106-122.

Kukenova, M. and Monteiro, J.A. (2009), "Spatial dynamic panel model and system GMM: a Monte Carlo investigation", (SSRN Working Paper).

Lang, L.H.P. and Stulz, R.M. (1994), "Tobin's Q, corporate diversification, and firm performance", *Journal of Political Economy*, Vol. 102 No. 6, pp. 1248-1280.

Liu, P. and Nguyen, H.T. (2020), "CEO characteristics and tone at the top inconsistency", *Journal of Economics and Business*, Vol. 108, p. 105887.

Marino, A., Parrotta, P. and Pozzoli, D. (2015), "Educational diversity and knowledge transfers via inter-firm labor mobility", *Journal of Economic Behavior & Organization*, Vol. 123, pp. 168-183.

Merkel-Davies, D.M. and Brennan, N.M. (2007), "Discretionary disclosure strategies in corporate narratives: incremental information or impression management?", *Journal of Accounting Literature*, Vol. 26, pp. 116-196.

Stuart, T.E., Hoang, H. and Hybels, R.C. (1999), "Interorganizational endorsements and the performance of entrepreneurial ventures", *Administrative Science Quarterly*, Vol. 44 No. 2, pp. 315-349.

Wang, T., Kannan, K.N. and Ulmer, J.R. (2013), "The association between the disclosure and the realization of information security risk factors", *Information Systems Research*, Vol. 24 No. 2, pp. 201-218.

Corresponding author

Michael Hadani can be contacted at: mh21@stmarys-ca.edu

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com