

**Mixed Messages:
Strategic Tonal Inconsistency and Recovery of the PEAD Anomaly**

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Purpose of This Paper

- First evidence that managers use **Tonal Inconsistency** across disclosures about same event.
- Why? → To **strategically** delay price discovery.

What is **Tonal Inconsistency**?

Chevron 2022-Q1: Consistent Messaging

Tone Press Release = -0.51

Tone Conference Call = -0.48

Currency Impact: “Foreign currency effects **decreased** earnings by **foreign currency effects**.”

Production Decline: “Worldwide net oil-equivalent production was **down production**.”

Reason for Decline: “...the absence of **production** following expiration of the Rokan **concession**.”

Downstream Loss: “International **downstream operations** reported a **loss**.”

Market Environment: “...the company’s control and are **difficult to predict**. Outcomes may **differ materially**.”

Currency Impact: “...**negative foreign currency effects**.”

Production Decline: “First quarter oil equivalent **production decreased** year-on-year ...”

Reason for Decline: “...due to the expiration of Rokan, **lower production** in Thailand as we approach the end of the concession ...”

Downstream Loss: “**Downstream earnings** decreased primarily on timing effects.”

Market Environment: “The last years have been **volatile and unpredictable**. While the future is **uncertain**, our actions are not.”

Amazon 2013-Q2: Tonal Inconsistency

Tone Press Release = +0.28

Tone Conference Call = -0.55

Operating Income: *"Operating income decreased... The unfavorable impact from year-over-year changes in foreign exchange rates..."*

Free Cash Flow: *"Free cash flow decreased... includes... purchases of corporate office space and property..."*

Highlights & Achievements: *"Amazon and Viacom... digital video licensing agreement... Kindle Fire HD... available in... 170 countries..."*

Future Outlook: No mention of estimated future operating losses.

Forward-Looking Statements: *"Actual results could differ materially... including... growth and expansion..."*

Operating Income: *"GAAP operating income decreased... or 0.5% of net sales"*

Free Cash Flow: *"Trailing 12-month free cash flow decreased... capital expenditures were..."*

Highlights & Achievements: No mention of these highlights or services.

Future Outlook: *"For Q3 2013, we expect... GAAP operating loss..."*

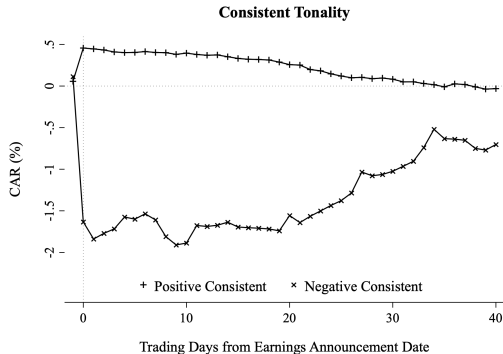
Forward-Looking Statements: *"Our results are inherently unpredictable... including exchange rate fluctuations and consumer spending..."*

PEAD Anomaly

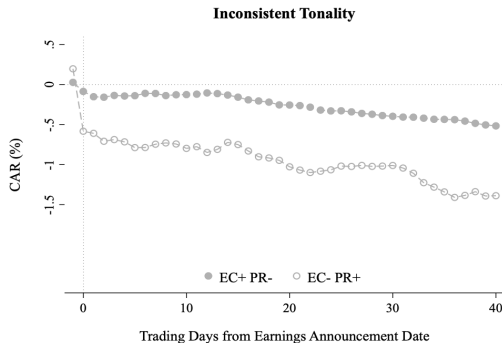
“The post-earnings announcement drift (PEAD) is the granddaddy of all under-reaction events... an anomaly above suspicion.” — Eugene Fama (1998)

“The classic PEAD strategy, once a reliable source of alpha, has been largely arbitrated away... for large, liquid stocks, the drift is for all practical purposes dead.” — Martineau et al. (2022)

PEAD vs. Reversal



- **Reversal** following consistent tone



- **PEAD** following mixed messages

Recovering PEAD

- The classic, quantitative PEAD has largely attenuated in recent years.
- This paper: a qualitative form of the anomaly driven by **strategic managerial communication**.
- PEAD is not gone but has changed form: a conditional anomaly arising from strategic managerial **Tonal Inconsistency**.

Motivation: Managers Manipulate Communications

- **A Familiar Friction**

- Investors have **limited processing capacity** in a world of complex and abundant information.
- Managers have strong incentives to **strategically manage** communications.

- The Known Playbook:

- **Within a Single Document:** Obfuscation, altering tone.
- **Across Unrelated Events:** Strategic timing, distraction.

This opens an unexplored dimension: Does manipulation also exist at a higher order, through the **interplay between communications for a single event?**

A New Form of Manipulation: Tonal Inconsistency

- **The Unique “same event, same time” Setting of Earnings News:**
 - Press Release
 - Conference Call
 - Time-difference between them: ~ 30 minutes (*median*)
- **The Higher-Order Manipulation:** What happens if the qualitative signals (the tones) of these two channels conflict for the very same event?
 - Is this inconsistency just noise, or is it a strategic choice?

Key Findings I

- **Tonal inconsistency** across disclosures is not noise, but a *strategic disclosure choice*.
- **Market Consequences:**
 - Attenuated market reaction to inconsistent announcements in the short term.
 - Delayed correction: negative post-announcement drift over roughly two months.
 - Anomaly Recovery:
 - A **PEAD** following **tonally inconsistent** disclosures.
 - A **Reversal** following **tonally consistent** disclosures.
- **Strategic Motives:**
 - **Insider trading:** Insiders strategically and opportunistically sell shares following inconsistent announcements, before prices fully correct.
 - **Delaying bad news:** Inconsistencies predict weaker future fundamentals (profitability, revenue).

Key Findings II: Mechanisms

- **Origins:** Firms with poor performance are more likely to employ inconsistent messaging.
- **Engineering:** Managers generate tonal inconsistency by emphasizing topics differently in the disclosures.
- **Market Channel:** Tonal inconsistencies create information frictions that operate mainly through ambiguity, rather than disagreement, asymmetry, or inattention.

Contributions I

- **PEAD Recovery**
- **Strategic Disclosure and Qualitative Information**
 - Managerial narratives strongly influence markets (Tetlock 2007; Li 2010; Loughran & McDonald 2013).
 - Prior research: tone *within a single disclosure* predicts market reactions (Henry 2008; Huang et al. 2014).
 - This paper: Identifies a *novel meta-level strategy*: manipulating consistency across concurrent disclosures.
- **Agency Conflicts and Managerial Incentives**
 - Managers strategically shape disclosures to delay bad news or protect compensation/reputation (Fama 1980; Healy 1985; Kothari et al. 2009).
 - Insider trading incentives: disclosure timing coordinated with Rule 10b5-1 trading plans (Ke et al. 2003; Jagolinzer 2009; Niessner 2014).
 - This paper: Connects tonal inconsistency to *insider trading incentives*; links inconsistencies to *adverse future performance*, consistent with managers delaying the recognition of bad news.

Contributions II

- **Information Processing Costs and Market Efficiency**

- Investors face limited capacity to absorb complex disclosures (Grossman & Stiglitz 1976; Sims 2003).
- Processing costs directly affect liquidity and price efficiency (Blankespoor et al. 2020).
- This paper: Provides evidence that managers engineer processing frictions via tonal inconsistency, introducing it as a *novel determinant of delayed information diffusion and mispricing*.

- **Disclosure Settings: Press Releases vs. Conference Calls**

- Prior work studies each channel largely in isolation.
- Press releases: structured, formal tone predicts short-term reactions (Henry 2008; Davis et al. 2012).
- Conference calls: interactive, tone-rich, with Q&A and affective cues (Tasker 1998; Matsumoto et al. 2011; Mayew & Venkatachalam 2012).
- This paper: Provides the first evidence that managers exploit this dual-channel setting to create strategic, manipulative tonal inconsistencies..

Data and Sample

- **Sample:**

- S&P 500 firms, 2006Q1–2023Q3.
- Focus: quarterly **earnings press releases** and **earnings calls** (management remarks).

- **Data Sources:**

- SEC EDGAR (earnings press releases).
- Capital IQ / Compustat (earnings call transcripts, accounting data).
- CRSP + Compustat (firm and market data).
- Kenneth French Data Library (FF5 factors).
- I/B/E/S (analysts forecasts).
- Loughran–McDonald Dictionary (Sentiment).
- LSEG, formerly Refinitiv, Thomson Reuters (insider trading).
- Google SVI (investor attention).
- Harvard Law School CCG Corpus of raw corporate charter text (to construct G-Index & E-Index)

Defining Tonal Inconsistency

- **Bag-of-Words Sentiment Scoring**

- Sentiment classified using **Loughran & McDonald (2011)** financial dictionary.
- Tone calculated as:

$$Tone_{j,t} = \frac{PW_{j,t} - NW_{j,t}}{PW_{j,t} + NW_{j,t}}$$

where PW = number of positive words, NW = number of negative words.

- Range: -1 (fully negative) to $+1$ (fully positive).
- **Tonal Inconsistency:** When sign of tone in PR does not match its sign in EC .
- **Robust to:**
 - Alternative BoW dictionary \rightarrow Garcia et al. (2023)
 - Alternative benchmarks

► Alternative Benchmarks

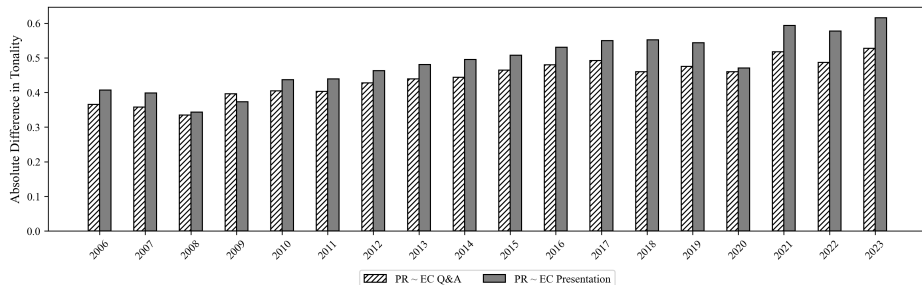
Classification of Consistency

- Firm-quarters are categorized into **four portfolios** based on tonal alignment across *press releases (PR)* and *earnings calls (EC)*:
 1. **Positive Consistent:** *PR* and *EC* positive.
 2. **Negative Consistent:** *PR* and *EC* negative.
 3. **EC+, PR-:** *EC* positive while *PR* negative.
 4. **EC-, PR+:** *EC* negative while *PR* positive.

Evolving Patterns in Disclosure Tone

- Disclosures are getting longer → higher processing costs for investors
- PR-EC tonal gaps increasing over time

► More on Inconsistency Measure



LLM-Based Placebo Test: Strategic Choice vs. Random Noise

The inconsistencies in manager-authored releases are not random noise.

Panel A: LLM-Generated Press Releases vs. Earnings Calls

	Count	Percentage
Consistent	1722	91.1%
Inconsistent	169	8.9%

Panel B: Real Press Releases vs. Earnings Calls

	Count	Percentage
Consistent	599	31.7%
Inconsistent	1292	68.3%

Case Study: Amazon.com (2013Q2)

Press Release vs. Conference Call (Tone Divergence)

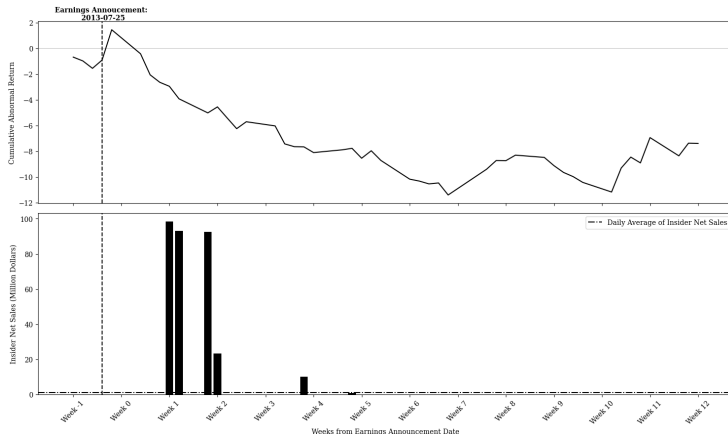
- **Operating Income:** PR downplays decline (exchange rate effect) vs. Call emphasizes margin pressure.
- **Free Cash Flow:** PR frames drop as strategic investment vs. Call stresses high expenditures.
- **Highlights:** PR showcases product launches, partnerships, global expansion vs. Call omits.
- **Cash Flow Growth:** PR stresses strength vs. Call neutral.
- **Outlook:** PR omits losses vs. Call highlights major potential operating loss.

Takeaway: EC is much less positive than PR.

► More

Case Study: Amazon.com (2013Q2)

- **Market Reaction:** Delayed negative PEAD.
- **Insider Behavior:** Insider selling during the mispricing window.



Hypothesis 1: Market Reaction to Tonal Inconsistency

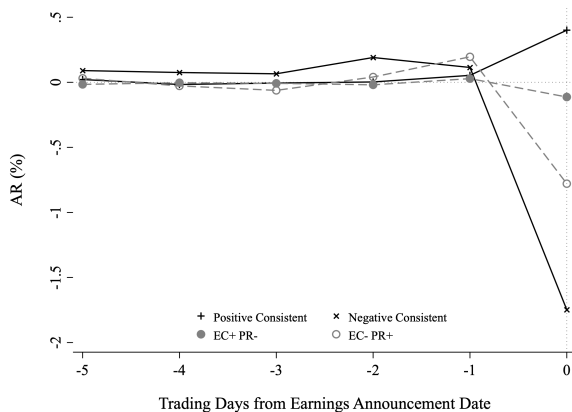
- **Theoretical Motivation:**

- When investors face *information processing costs*, they may initially *underreact* to complex or conflicting disclosures (Hirshleifer & Teoh, 2003).
- Such underreaction can manifest as a delayed *drift*, raising the possibility of PEAD.

- **Hypothesis 1 (H1):** Compared to the baseline category (uniformly negative announcements), tonally inconsistent announcements will exhibit:
 - (a) A less negative immediate stock price reaction.
 - (b) A significant negative post-announcement drift.

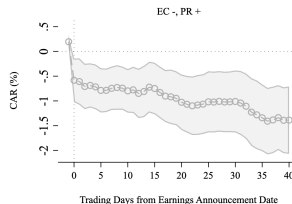
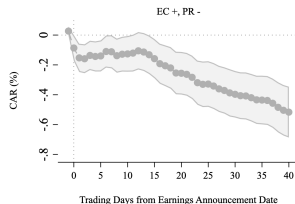
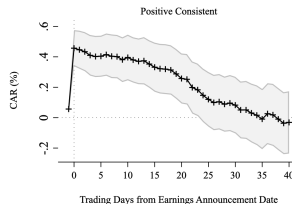
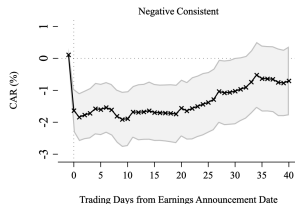
Evidence for H1(a): Immediate Market Reaction

Less negative immediate stock price reaction compared to the baseline category (Negative Consistent) on event day:



Evidence for H1(b): Post-Announcement Drift

- **PEAD** following mixed messages ▶ PEAD
- **Reversal** following consistent tone



Baseline Analysis

$$CAR_{i,t,k} = \beta_0 + \beta_1 PositiveConsistent_{i,t} + \beta_2 EC^+ PR_{i,t}^- + \beta_3 EC^- PR_{i,t}^+ + \beta_4 Controls_{i,t} + \alpha_i + \gamma_t + \varepsilon_{i,t}$$

- **Outcome:** $CAR_{i,t,k}$ measured across multiple horizons:
 - **Non-overlapping windows:** $[-1:1]$, $[2:5]$, $[6:20]$, $[21:40]$
 - **Overlapping windows:** $[-1:1]$, $[2:5]$, $[2:20]$, $[2:40]$
- **Key regressors (tone classes):**
 - $PositiveConsistent_{i,t}$, $EC^+ PR_{i,t}^-$, $EC^- PR_{i,t}^+$
 - *Omitted category:* $NegativeConsistent_{i,t}$ (baseline).
 - $\beta_2, \beta_3 \Rightarrow$ CAR differences for inconsistent groups vs. baseline.
- **Controls:**
 - SUE , lagged CARs, firm size, BM , institutional ownership.
 - Additional attention/distraction controls: Friday announcement, after-hours announcements, disclosures' time difference, and different-day disclosures.

CARs in Non-Overlapping Windows

Inconsistent groups experience higher abnormal returns within the event window, but exhibit more negative PEAD in the non-overlapping windows following the announcement.

	CAR[-1:1]	CAR[2:5]	CAR[6:20]	CAR[21:40]
Positive Consistent	2.28*** (5.58)	-0.31* (-1.70)	-0.01 (-0.02)	-0.64 (-1.54)
EC +, PR -	1.61*** (3.99)	-0.25 (-1.32)	0.15 (0.44)	-0.71* (-1.74)
EC -, PR +	0.94** (2.09)	-0.41* (-1.81)	-0.19 (-0.47)	-0.94** (-1.97)
Observations	24,618	24,618	24,618	24,618
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Adjusted R-sq	0.069	0.019	0.027	0.039

Results hold when including:

- Investor attention and distraction controls
- CEO fixed effect

► CARs in Overlapping Windows

Drivers of Post-Announcement Drift

- **Motivation:**

- **H1** showed inconsistency \Rightarrow attenuated initial reaction + negative drift.
- Question: What drives the drift?
- Hypothesis: Drift is concentrated in cases where *tonal inconsistency* coincides with *negative fundamental news*.

- **Empirical Strategy:**

- Augment baseline with *Negative News* indicator.
- Construction: firm's SUE compared to the distribution of SUE in the **same quarter of the prior year**.
- *Negative News* = 1 if current SUE falls in the **bottom 3 deciles** of that rolling distribution.
- Interact *Negative News* with tonal inconsistency dummies \Rightarrow test whether drift is stronger under adverse fundamentals.

Evidence: Inconsistency \times Negative News

PEAD is concentrated in cases where tonal inconsistency coincides with negative fundamental news.

	CAR[-1:1]	CAR[2:5]	CAR[6:20]	CAR[21:40]
Positive Consistent	2.41*** (5.42)	-0.12 (-0.46)	0.18 (0.42)	0.22 (0.44)
EC +, PR -	1.74*** (3.92)	-0.02 (-0.08)	0.33 (0.75)	0.12 (0.25)
EC -, PR +	0.92* (1.82)	-0.09 (-0.29)	-0.09 (-0.20)	0.11 (0.21)
Negative News	-1.33** (-2.03)	0.40 (1.02)	0.39 (0.65)	1.54* (1.96)
Negative News \times (Positive Consistent)	-0.84 (-1.29)	-0.33 (-0.84)	-0.41 (-0.66)	-1.53* (-1.91)
Negative News \times (EC +, PR -)	-0.62 (-0.95)	-0.44 (-1.11)	-0.35 (-0.57)	-1.47* (-1.82)
Negative News \times (EC -, PR +)	-0.40 (-0.47)	-0.65 (-1.51)	-0.09 (-0.13)	-2.11** (-2.45)
Observations	24,326	24,326	24,326	24,326
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Adjusted R-sq	0.085	0.019	0.027	0.039

Accident or Strategy?

- Tonal inconsistency \Rightarrow slow price discovery (lower event reaction + downward drift).
- Effect amplified when paired with negative fundamentals.
- Raises key question:
 - Accidental variation in tone?
 - Or deliberate obfuscation by managers?

\Rightarrow Motivates H2 (Insider Trading) and H3 (Future Fundamentals).

Insider Trading: Hypotheses

Do insiders exploit the mispricing window?

Hypotheses:

- **H2:** Total insider sales rise significantly post inconsistent announcements before complete price discovery.
 - **H2(a):** Narrative-setting top executives (CEO, CFO, COO, President, Chair) \Rightarrow more *planned* Rule SEC 10b5-1 sales.
 - **H2(b):** Other informed insiders \Rightarrow more *unplanned* sales.

Insider Trading: Empirical Strategy

$$Y_{i,t,k} = \beta_0 + \sum_j \beta_j D_k + \sum_m \gamma_m TONE_GROUP_{i,t}^m \\ + \sum_{j,m} \delta_{jm} (D_k \times TONE_GROUP_{i,t}^m) + \beta_4 Controls_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t}$$

- $Y_{i,t,k}$: Insider (net) sales for firm i in window k .
- D_k : Event-time dummies ($[-1:1]$: announcement window, $[2:5]$: week after).
- $TONE_GROUP^m$: *Positive Consistent, Inconsistent*.
 - Baseline: *Negative Consistent*.
- Controls: SUE , lagged $CARs$, firm size, BM , institutional ownership.

Evidence for H2: Insider Trading

Insider sales rise significantly post inconsistent announcements before complete price discovery; planned for top executives and unplanned for other insiders.

	All Insiders' Net Sale	Top Executives Sale		Other Insiders Sale	
		Planned	Unplanned	Planned	Unplanned
...					
Date[-1:1] × Inconsistent	0.106 (0.81)	0.005** (2.11)	-0.002 (-0.23)	0.003 (0.28)	0.032 (0.57)
Date[2:5] × Inconsistent	0.753** (2.21)	0.005** (2.10)	0.165 (1.22)	0.030 (1.20)	0.269*** (2.70)
...					
Observations	1,714,964	1,714,964	1,714,964	1,714,964	1,714,964
Daily Mean (\$M)	0.284	0.003	0.031	0.010	0.200
Firm FE	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Adjusted R-sq	0.003	0.017	0.005	0.010	0.004

Forecasting Firm Fundamentals

- **Motivation:** Disclosure & agency theories \Rightarrow managers may obscure bad outlooks to protect pay, reputation, careers.
- **H3:** Tonally inconsistent announcements are followed by a decline in *future* operating performance.
- **Design:** Predict next-quarter fundamentals using inconsistency at t .
 - Outcomes (scaled by lagged assets):
 - Operating income before depreciation
 - Net income
 - Sales

Evidence for H3: Future Fundamentals

Tonal inconsistency can predict a decline in future operating performance.

	Operating Income	Net Income	Sale
Inconsistent	-0.14*** (-2.59)	-0.11** (-2.02)	-0.49*** (-3.10)
Observations	24,747	24,747	24,747
Firm FE	✓	✓	✓
Year-Month FE	✓	✓	✓
Controls	✓	✓	✓
Adjusted R-sq	0.440	0.252	0.911

Mechanisms: Three Levels of Analysis

- **Origins:** Which firm- and CEO-level characteristics make inconsistent messaging more likely?
- **Engineering:** How do managers craft inconsistency across disclosure channels (themes, narratives, emphasis)?
- **Market Channel:** By what information friction pathways do inconsistencies affect market participants and price discovery?

Mechanism I: Origins of Inconsistency

Panel logistic regressions across four channels (outcome: **Tonal Inconsistency**):

- **CEO Characteristics:** Overconfidence, gender, tenure, equity pay ratio, CEO ownership.
- **Corporate Governance:** E-Index, analyst coverage, institutional ownership.
- **Corporate Performance:** ROA, Altman Z-Score, sales growth.
- **Corporate Risk:** Operating ROA volatility, idiosyncratic volatility.

Origins of Inconsistency

- Firms with poor performance \Rightarrow more likely to exhibit tonal inconsistency
- Higher corporate risk \Rightarrow predicts inconsistency
- CEO characteristics \Rightarrow show no effect

► Comprehensive Analysis

Outcome: Tonal Inconsistency

	(1)	(2)	(3)	(4)
CEO Characteristics				
Overconfidence	-0.18 (-1.10)	-0.20 (-1.22)		
Female CEO	0.25* (1.70)	0.21 (1.48)		
CEO Tenure	-0.00 (-0.09)	-0.00 (-0.16)		
Equity Pay Ratio	0.18 (1.30)	0.22 (1.55)		
CEO Ownership	0.04* (1.94)	0.04* (1.92)		
Corporate Performance				
ROA	-7.14*** (-5.11)		-7.40*** (-5.25)	
Altman Z-Score	-0.02* (-1.89)		-0.02* (-1.84)	
Sales Growth	0.02 (0.17)		0.03 (0.29)	
Corporate Risk				
Idiosyncratic Volatility	0.78* (1.80)			1.11*** (2.58)
Operating ROA Volatility	6.38*** (3.56)			5.72*** (3.24)
Observations	16,983	16,983	16,983	16,983
Pseudo R-sq	0.314	0.310	0.312	0.311
F-test p-val (CEO Traits)	0.112	0.109		
F-test p-val (Performance)	0.000		0.000	
F-test p-val (Risk)	0.000			0.000
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Pr > χ^2	0.000	0.000	0.000	0.000

Mechanism II: Engineering Inconsistency

- **Tone measure:** Based on the aggregate count of positive and negative words (Loughran–McDonald dictionary) across each disclosure.
- **Managerial levers to shape aggregate tone:**
 1. *Word choice within topics:* Managers can select more positive or negative phrasing while discussing the same topic.
 2. *Topic divergence across disclosures:* Managers can shift emphasis across press releases vs. calls (e.g., highlighting growth in PR, stressing risks in calls).
- **Is tonal inconsistency driven by topic divergence across concurrent disclosures?**
- If so, on which topics do managers *diverge across disclosure channels* to craft tonal inconsistency?

Topic Modeling

- **Structural Topic Model (STM)**: an extension of LDA.
 - **Key Advantage:** It allows document metadata (covariates) to be included in the estimation, which controls for known sources of heterogeneity in corporate disclosures.
- The STM is estimated with prevalence covariates: *Quarter*, $\log(\text{MarketCap})$, and *Industry*.
- Each disclosure is represented as a vector of 43 topic proportions θ^k , capturing the thematic composition of the text..

▸ Extracted Topics from STM Analysis

▸ Topic Distribution Across Corporate Disclosures

Topic Similarity Differences by Consistency

Inconsistent announcements are **less similar** in topics:

	Inconsistent	Consistent	Diff
Panel A: Press Releases and EC Presentation			
Topic Similarity	0.407	0.450	-0.043*** (-14.63)
Panel B: Press Releases and EC Q&A			
Topic Similarity	0.269	0.305	-0.036*** (-14.16)
Panel C: Minimum Similarity (PR vs. Both EC Sections)			
Topic Similarity	0.264	0.301	-0.037*** (-14.82)

Defining Topic Divergence

- For each topic k , compute the absolute difference between PR and EC sections:

$$\Delta\theta_{i,t}^k = \max\left(|\theta_{i,t}^{PR,k} - \theta_{i,t}^{EC-Pres,k}|, |\theta_{i,t}^{PR,k} - \theta_{i,t}^{EC-Q\&A,k}|\right)$$

- $\Delta\theta_{i,t}^k$ = thematic divergence for topic k .
- **F**or each firm-quarter \Rightarrow 43 $\Delta\theta$ variables (one per topic)

Identifying Thematic Drivers of Inconsistency

- **Model setup:**

- Dependent variable: $Inconsistent_{i,t} = 1$
- Predictors: 43 topic deltas $\Delta\theta_{i,t}^k$ + firm-level controls.
- Estimator: Post-LASSO Linear Probability Model with 10-fold CV.

- **Specification:**

$$Inconsistent_{i,t} = \alpha_i + \gamma_t + \sum_{k=1}^{43} \beta_k \Delta\theta_{i,t}^k + Controls_{i,t} + \varepsilon_{i,t}$$

- LASSO selects high-signal topics → reduces dimensionality, highlights thematic drivers.

Thematic Drivers of Tonal Inconsistency

Topic Name	Coefficient
Financial Metrics & Non-GAAP Measures	0.81*** (18.35)
Financial Reporting & Forward-Looking Statements	0.80*** (12.70)
Financial Performance & Restructuring	0.99*** (11.25)
COVID-19 Pandemic Impact	0.62*** (4.40)
M&A & Corporate Transactions	0.38*** (4.07)
Banking & Credit	0.33** (2.25)
Corporate Governance	0.25** (2.33)
Macroeconomic Conditions & Prudence	0.22*** (3.21)
Managerial Uncertainty & Qualifiers	0.21*** (4.20)
Pharmaceutical & Medical Devices	-0.72*** (-4.45)
Corporate Culture & Leadership	-0.30*** (-4.24)
Observations	22,926
Firm FE	✓
Year-Month FE	✓
AUC	0.621
F-test p-value	0.000
Pr > χ^2	0.000

► Comprehensive results

Which Topic Divergences Drive Inconsistency?

- **Metrics & Reporting Tilt**

- *Financial Metrics & Non-GAAP Measures, Financial Reporting & Forward-Looking Statements*

- **Performance & Restructuring Emphasis**

- *Financial Performance & Restructuring, M&A & Corporate Transactions*

- **Risk, Credit & Uncertainty Framing**

- *Managerial Uncertainty & Qualifiers, Banking & Credit, Macroeconomic Conditions & Prudence, COVID-19 Impact*

- **Governance & Policy Signaling**

- *Corporate Governance*

- **Sector/Operations Storylines**

- *Oil & Gas Exploration & Production, Life Insurance & Annuities, Agricultural Transportation & Logistics*

Mechanism III: Market Channel

Question: Through which channel does tonal inconsistency impede price discovery?

- **Disagreement:** Predicts higher trading and higher IVOL. **Not supported:** Inconsistent announcements show *lower* trading volume and no increase in IVOL.
 - ▶ IVOL results
 - ▶ Trading Volume results
- **Inattention:** Would imply weak investor focus. **Not supported:** Earnings calls are high-salience events and results are robust to attention/distraction controls (Friday, after-hours, timing, etc.). Also no results for inattention using **Google SVI/ASVI**.
 - ▶ Google SVI results
- **Information Asymmetry:** *outsiders' information environment degrades*, both public and private info quality fall.
 - ▶ Analysts' information environment results
- **Ambiguity:** Supported: Inconsistent announcements \Rightarrow reduced trading activity, wider bid-ask spreads, and degraded info quality. Investors may adopt a wait-and-see posture.
 - ▶ Bid-ask spread results

Conclusion

- This study identifies a novel managerial manipulation channel: **tonal inconsistency** across disclosures.
- **Consequences:** heightened information frictions, attenuated market reaction, and a delay in price discovery → impairing market efficiency.
- **Recovers the PEAD anomaly** by showing it persists, conditional on strategic inconsistency.
- My findings underscore the need to analyze disclosures as an **interconnected system**, where meaning emerges from both **content and consistency**.
- This work has implications for **policymakers** seeking to protect **market integrity**, **investors** aiming to decode complex corporate narratives, and the broader **social welfare** that depends on fair and transparent markets.

► The New Research Agenda

Thank you!

Happy to take any questions or comments.

Appendix

Case Study: Amazon Q2 2013 - Mixed Messages

- The *Press Release* presented an optimistic narrative, while the *Conference Call* was cautious and negative about the **same** Q2 2013 earnings results.

Press Release: The Positive Spin

- **Operating Income:** 26% drop attributed to FX rates.
- **Free Cash Flow:** 76% decrease framed as strategic investment.
- **Highlights:** Showcased new deals (Viacom), product launches (Kindle).
- **Future Outlook:** No mention of potential losses.
- **Takeaway:** A compelling example of a **meta-level strategy**, simple positive narrative for the masses (PR), complex negative details for sophisticated investors (EC).

Conference Call: The Cautious Reality

- **Operating Income:** Emphasized a razor-thin 0.5% profit margin.
- **Free Cash Flow:** Focused on \$4.27B in overall capital expenditures.
- **Highlights:** Complete silence on all positive achievements.
- **Future Outlook:** Projected a significant **\$440M operating loss**.

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Alternative Benchmarks for Inconsistency

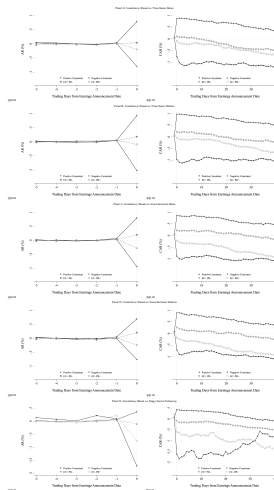
- **Alternative Dictionary:** Machine-learning-based word lists from Garcia, et al. (2023).
- **Alternative Benchmarks:**
 - Firm's historical average tone (time-series mean)
 - Firm's historical median tone (time-series median)
 - Cross-sectional average tone in the same year-month
 - Cross-sectional median tone in the same year-month

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Alternative Benchmarks for Inconsistency: Results

VARIABLES	CAR[-1:1]	CAR[2:5]	CAR[2:20]	CAR[2:40]
Panel A: Time-Series Mean Comparison				
EC +, PR -	1.31*** (9.56)	-0.05 (-0.84)	-0.21 (-1.62)	-0.18 (-0.98)
EC -, PR +	0.85*** (6.54)	-0.10 (-1.55)	-0.34** (-2.53)	-0.52** (-2.54)
Panel B: Time-Series Median Comparison				
EC +, PR -	1.30*** (10.11)	-0.05 (-0.86)	-0.19 (-1.44)	-0.16 (-0.95)
EC -, PR +	0.86*** (7.01)	-0.13** (-2.23)	-0.41*** (-3.20)	-0.57*** (-3.11)
Panel C: Cross-Sectional Mean Comparison				
EC +, PR -	1.19*** (8.91)	0.00 (0.08)	-0.01 (-0.11)	-0.06 (-0.37)
EC -, PR +	0.70*** (4.94)	-0.05 (-0.77)	-0.21 (-1.43)	-0.40** (-2.00)
Panel D: Cross-Sectional Median Comparison				
EC +, PR -	0.97*** (7.86)	-0.03 (-0.45)	-0.04 (-0.30)	-0.04 (-0.27)
EC -, PR +	0.57*** (4.50)	-0.06 (-0.97)	-0.27* (-1.90)	-0.31* (-1.68)
Panel E: Using Diego Garcia Dictionary				
EC +, PR -	1.52*** (4.27)	-0.46** (-1.97)	-0.16 (-0.43)	-0.79 (-1.60)
EC -, PR +	0.70 (1.64)	-0.60** (-2.28)	-0.59 (-1.30)	-1.42** (-2.45)
Observations	24,638	24,638	24,638	24,638
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓

Alternative Benchmarks for Inconsistency: Results2

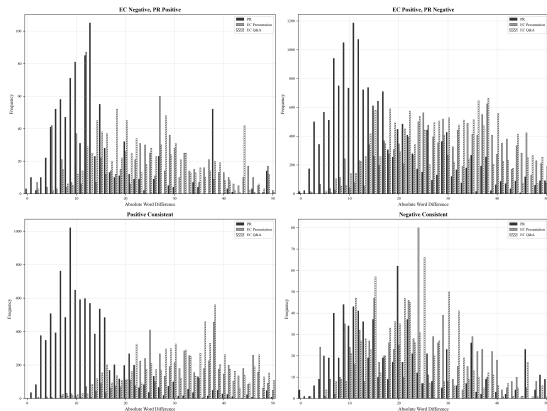


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Positive vs. Negative Word Difference Distribution

The mean absolute Positive vs. Negative word difference:

- Press Releases: 18.92 words
- Earnings call Presentations: 42.55 words
- Earnings call Q&As: 35.80 words



CARs in Overlapping Windows

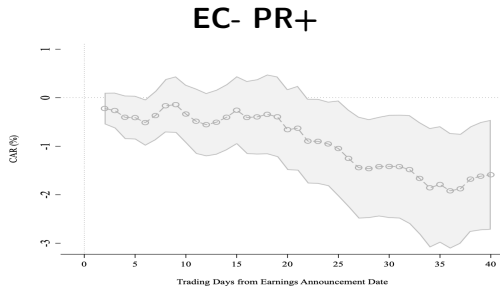
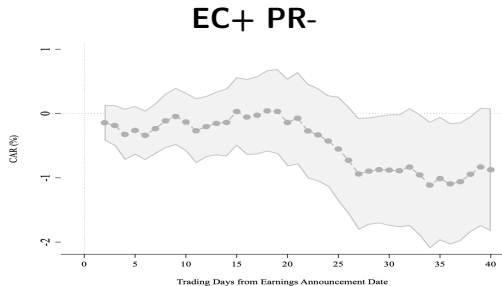
Inconsistent groups experience higher abnormal returns within the event window, but exhibit more negative PEAD in the overlapping windows following the announcement.

	CAR[-1:1]	CAR[2:5]	CAR[2:20]	CAR[2:40]
Positive Consistent	2.28*** (5.58)	-0.32* (-1.72)	-0.33 (-0.93)	-0.97* (-1.90)
EC +, PR -	1.62*** (4.01)	-0.26 (-1.35)	-0.11 (-0.33)	-0.82* (-1.68)
EC -, PR +	0.95** (2.10)	-0.42* (-1.83)	-0.61 (-1.45)	-1.55*** (-2.68)
...				
Observations	24,638	24,638	24,638	24,638
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Adjusted R-sq	0.068	0.018	0.031	0.040

Results hold when including:

- Investor attention and distraction controls
- CEO fixed effect

PEAD (with Controls and Fixed-Effects)



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Comprehensive Evidence for Origins of Inconsistency

	(1)	(2)	(3)	(4)	(5)
CEO Characteristics					
Overconfidence	-0.18 (-1.10)	-0.20 (-1.22)			
Female CEO	0.25* (1.70)	0.21 (1.48)			
CEO Tenure	-0.00 (-0.09)	-0.00 (-0.16)			
Equity Pay Ratio	0.18 (1.30)	0.22 (1.55)			
CEO Ownership	0.04* (1.94)	0.04* (1.92)			
Corporate Governance					
E-Index	-0.15** (-2.12)		-0.14** (-1.97)		
Analyst Coverage	0.19 (1.17)		0.18 (1.13)		
Institutional Ownership	1.48*** (3.63)		1.44*** (3.58)		
Corporate Performance					
ROA	-7.14*** (-5.11)		-7.40*** (-5.25)		
Altman Z-Score	-0.02* (-1.89)		-0.02* (-1.84)		
Sales Growth	0.02 (0.17)		0.03 (0.29)		
Corporate Risk					
Idiosyncratic Volatility	0.78* (1.80)				1.11*** (2.58)
Operating ROA Volatility	6.38*** (3.56)				5.72*** (3.24)
Observations	16,983	16,983	16,983	16,983	16,983
Pseudo R-sq	0.314	0.310	0.310	0.312	0.311
F-test p-val (CEO Traits)	0.112	0.109			
F-test p-val (Governance)	0.000		0.001		
F-test p-val (Performance)	0.000			0.000	
F-test p-val (Risk)	0.000				0.000
Firm FE	✓	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Pr > χ^2	0.000	0.000	0.000	0.000	0.000

Thematic Drivers of Tonal Inconsistency

Topic Name	Coefficient	Topic Name	Coefficient
Financial Metrics & Non-GAAP Measures	0.81*** (18.35)	Financial Reporting & Forward-Looking Statements	0.80*** (12.70)
Financial Performance & Restructuring	0.99*** (11.25)	Tobacco Industry Litigation & Regulation	0.66*** (9.25)
Life Insurance & Annuities	0.74*** (4.27)	COVID-19 Pandemic Impact	0.62*** (4.40)
Oil & Gas Exploration & Production	0.47*** (3.81)	Agricultural Transportation & Logistics	0.41** (2.41)
M&A & Corporate Transactions	0.38*** (4.07)	Banking & Credit	0.33** (2.25)
Corporate Governance	0.25** (2.33)	Macroeconomic Conditions & Prudence	0.22*** (3.21)
Managerial Uncertainty & Qualifiers	0.21*** (4.20)	Electric Utilities & Renewable Energy	0.20 (1.58)
Waste Management & Environmental Services	0.14 (0.50)	Raw Materials & Manufacturing	0.10 (0.66)
Strategic Execution & Value Creation	0.08 (1.50)	Mining & Commodity Refining	0.08 (0.41)
Consumer Brands, Food & Beverage	0.03 (0.23)	Pharmaceutical & Medical Devices	-0.72*** (-4.45)
Corporate Culture & Leadership	-0.30*** (-4.24)	Telecommunications & Wireless Services	-0.34* (-1.67)
Earnings Call Protocol & Q&A	-0.57 (-1.35)	Restaurant & Food Service	-0.18 (-0.96)
Media, Entertainment, & Hospitality	-0.13 (-0.77)	Real Estate & Construction	-0.13 (-0.74)
Digital Payments & Fintech	-0.07 (-0.57)	Strategic Planning & Capital Allocation	-0.01 (-0.24)
Biopharma R&D & Clinical Trials	-0.01 (-0.09)		
Observations		22,926	
Firm FE		✓	
Year-Month FE		✓	
AUC		0.621	
F-test p-value		0.000	
Pr > χ^2		0.000	

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Introduction

Sample and Measures

H1

H2

H3

Mechanisms

Conclusion

Appendix

Extracted Topics from STM Analysis (1/3)

1. Waste Management & Environmental Services

waste, landfill, recycling, disposal, volume

3. Tobacco Industry Litigation & Regulation

cigarette, tobacco, court, plaintiff, lawsuit

5. Earnings Call Protocol & Q&A

caller, later, multi, caller, wide_variety, brief

7. Digital Payments & Fintech

debit, card, app, merchant, mobile, payment

9. Property & Casualty Insurance

catastrophe, combine_ratio, accident, underwriting

11. Pharmaceutical & Medical Devices

generic_competition, allergan, stent, pacemaker

13. COVID-19 Pandemic Impact

pandemic, crisis, lockdown, virus, resilient, coronavirus

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2. Financial Reporting & Investor Relations

statement, slide, website, president, chief, officer

4. Corporate Culture & Leadership

people, love, learn, incredible, amazing, idea

6. Strategic Execution & Value Creation

strategic, execute, execution, progress, leadership

8. Managerial Uncertainty & Qualifiers

guess, anything, cash_flow, happen, whatever

10. Industrial Equipment & Manufacturing

aftermarket, engine, industrial, truck, equipment

12. Macroeconomic Conditions & Prudence

balance_sheet, stable, environment, conservative

14. Raw Materials & Manufacturing

raw_material, lithium, aluminum, steel, packaging

Extracted Topics from STM Analysis (2/3)

15. Asset Management & Financial Services

client, institutional, inflow, outflow, fund, advisory

17. Retail Operations & Merchandising

store, merchandise, comp, assortment, dollar_tree

19. Telecommunications & Wireless Services

broadband, postpaid, churn, verizon, wireless

21. Capital Markets & Trading

clearing, trading, issuance, index, agency, s&p

23. Semiconductor & Hardware Technology

nanometer, foundry, memory, semiconductor

25. Real Estate & Construction

homebuilding, dealer, housing, land, builder

27. Corporate Governance

stock, stockholder, compensation, document

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16. Oil & Gas Exploration & Production

oil_equivalent, drill, wolfcamp, marcellus, drilling

18. Healthcare & Clinical Trials

dose, readout, inhibitor, efficacy, study, antibody

20. Revenue Growth & Financial Performance

revenue, organic, margin, adjusted, guidance

22. Life Insurance & Annuities

variable_annuity, annuity, mortality, persistency

24. Electric Utilities & Renewable Energy

megawatt, transmission, electric, utility, solar

26. Biopharma R&D & Clinical Trials

pharmacy, health_care, cigna, generic, medical

28. Life Sciences & Medical Technology

agilent, lab, invisalign, surgeon, instrument

Extracted Topics from STM Analysis (3/3)

29. Cloud Computing & Enterprise Software
cloud, software, saas, cisco, hardware, enterprise

31. Defense & Aerospace
airplane, award, dod, aircraft, missile, defense

33. Banking & Credit
noninterest, loan, deposit, mortgage_banking

35. Consumer Brands, Food & Beverage
cereal, soup, foodservice, beer, coffee, wine

37. Retail Apparel & Consumer Products
footwear, beauty, apparel, woman, mall, makeup

39. Media, Entertainment, & Hospitality
hotel, movie, audience, programming, netflix

41. International Markets & Currency
latin_america, russia, brazil, europe, india, asia

43. M&A & Corporate Transactions
cash, flow, debt, integration, synergy, acquisition

30. Financial Reporting & Forward-Looking Stmts
selling_price, price_realization, conference_call

32. Financial Metrics & Non-GAAP Measures
measures, comparable, intangible, fair_value

34. Agricultural Transportation & Logistics
intermodal, railroad, corn, truckload, soybean

36. Mining & Commodity Refining
molybdenum, refining, newmont, refinery, copper

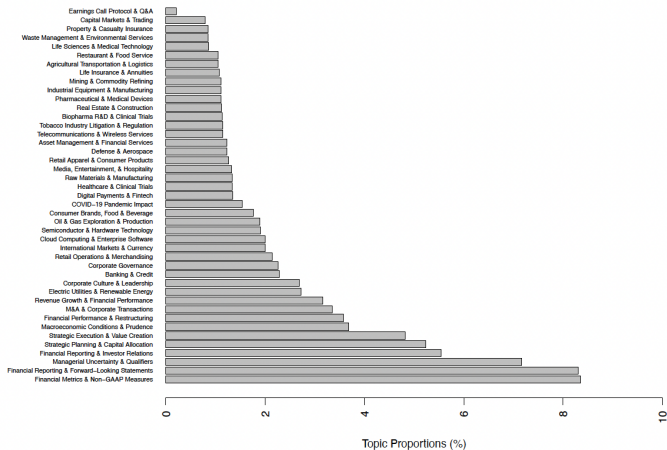
38. Strategic Planning & Capital Allocation
standpoint, perspective, frankly, free_cash_flow

40. Restaurant & Food Service
restaurant, franchisee, monster, menu, olive_garden

42. Financial Performance & Restructuring
unfavorable, decrease, decline, restructuring

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Topic Distribution Across Corporate Disclosures



Trading Volume and Bid-Ask Spread

	Standardized Spread	LVOL	MDAJVOL
Inconsistent	-0.01** (-2.44)	0.00 (0.58)	-0.00 (-0.75)
Date[-1:1]	1.23*** (48.27)	0.55*** (55.19)	0.77*** (27.44)
Date[2:5]	0.16*** (12.18)	0.17*** (32.54)	0.17*** (22.28)
Date[-1:1] × Inconsistent	-0.01 (-0.64)	-0.03*** (-3.53)	-0.08*** (-3.17)
Date[2:5] × Inconsistent	0.03*** (2.74)	-0.00 (-0.89)	-0.01 (-0.97)
Constant	0.15** (2.55)	2.10*** (10.48)	0.47*** (5.54)
Observations	1,714,702	1,714,702	1,714,702
Firm FE	✓	✓	✓
Year-Month FE	✓	✓	✓
Controls	✓	✓	✓
Adjusted R-sq	0.274	0.589	0.138

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Idiosyncratic Volatility and Investor Attention

	IVOL[0:5]	IVOL[6:20]	ASVI	SVI
Inconsistent	-0.01 (-0.40)	-0.02 (-1.13)	-0.10 (-0.39)	0.09 (0.28)
Constant	7.26*** (14.23)	5.34*** (15.95)	-8.58* (-1.89)	41.24*** (6.32)
Observations	24,855	24,853	24,828	24,828
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Adjusted R-sq	0.325	0.452	0.456	0.576

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Analysts' Information Environment

	Dispersion	Consensus	Common Info Quality	Private Info Quality
Inconsistent	0.00 (0.96)	-0.00 (-0.66)	-0.05*** (-2.97)	-0.04** (-2.43)
Constant	0.03*** (7.23)	0.55*** (6.37)	-4.34*** (-14.47)	-3.23*** (-10.96)
Observations	24,855	24,855	24,855	24,855
Firm FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Adjusted R-sq	0.393	0.094	0.086	0.052

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The New Research Agenda

- **Audience Segmentation**

Designed to influence different audiences in different ways? → for instance: PR for retail (simple, positive) vs. CC for analysts (complex, cautious)

- **Generality of Framework**

Extend to other disclosure pairs (10-K vs. Annual Report, ESG vs. MD&A, etc.)

- **Real Effects**

Impacts on cost of capital, investment efficiency, stakeholder trust

- **Regulatory Implications**

Factually accurate but misleading overall? Challenges to Fair Disclosure, board oversight