

Impact of Executive Communication Tone on Short-Term Market Movements

DATA7001 - Introduction to Data Science Group Project

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Introduction

Can the tone and sentiment expressed by company executives during earnings calls influence short-term stock price movements?

Why is it important?

Earnings calls contain forward-looking statements, management tone, and Q&A discussions that impact stock prices. Understanding how executive communication affects stock movements can help investors, analysts, and companies make more informed decisions

Why did we choose it?

We found this topic very interesting and different. And want to explore the link between executive communication, human emotion, and how it can influence short-term market behaviour.



Image source: [David Kostin Lhpke, LinkedIn](#)

Datasets

Data Overview:

- **STRUX Transcript Dataset** [\(Lu, et al. 2025\)](#)
 - 11,950 transcripts, covering 869 companies and has data from 2017–2024
 - Source: [Motley Fool](#) – a reputable financial media platform known for accurate earnings call coverage. [\(Hu, et al. 2025\)](#)
 - Includes prepared remarks + Q&A sessions
 - Taken from Hugging Face: [BUILDERlym/STRUX-Transcripts](#)
- **Stock Price Dataset** by Yahoo Finance using [yfinance API](#)
 - Has data from 1980 – 2024
 - 2011 entries with attributes for various tickers

Data Source Reliability and Credibility

Why STRUX?

- Reliable and authentic financial text data
- Used in NAACL 2025 research for structured fact extraction and prediction

Yahoo Finance Dataset:

- Type: Financial data provided by **ICE Data Services, Morningstar, S&P, LSEG, etc.** ([source: Yahoo Help](#))
- Coverage: Global stocks, ETFs, indices
- Reliability: Trusted financial platform; data reflects official exchange records

Reliability Factors:

- Data comes from official earnings call transcripts, which are publicly disclosed by companies → high authenticity
- Motley Fool verified summaries ensure accurate transcription

Research Questions

“Do the positive, negative, or neutral tones expressed by company executives during earnings calls affect short-term stock price movements (1, 3, and 7 days after the call)?”

“Which executive roles (CEO, CFO, VP, etc) exert the strongest influence on short-term stock price changes through their communication tone?”

Proposed Methodology

- Get stock prices and compute short-term returns
- Extract sentiment from transcripts (FinBERT) ([Huang, Wang and Yang 2022](#))
- Compare prepared remarks vs Q&A
- Control for firm/market factors
- EDA: visualize distributions, correlations, trends

Proposed Methodology

- **Statistical Testing:**

t-tests comparing positive vs negative tone calls

Regression analysis with control variables

- **Machine Learning Extension:** (If time permits)

To Predict stock return direction (up/down)

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THANK YOU

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