Informing Investors with Sentiment + Topic Analysis

Proof of Concept through...

Group 8: Tyler Gimple, Rosemary O'Hagan,Dominic Sfreddo, Jay Whitmire, and Zoe Zheng

AGENDA

INTRO → **MODEL** → **BUSINESS VALUE** → **LIMITATIONS + OPPORTUNITIES**

- ★ Data Cleaning
- ★ Analyses
- ★ Sample Output

- ★ Value Proposition: PoC Verizon
- ★ Going Beyond: Fit for Reorg

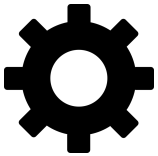
- ★ Limitations
- ★ Possible Opportunities + Additional Data

INTRODUCTION

1.

Investors face **two big decisions:**

- Whether to invest in an industry

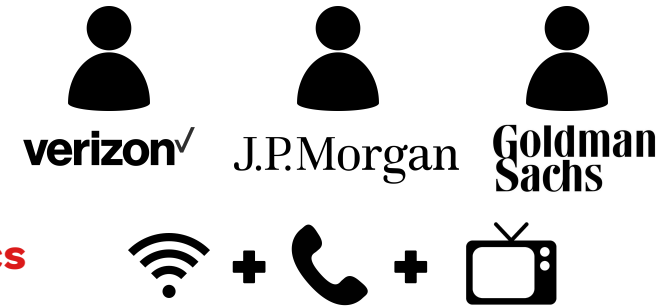


- Whether to invest in a company

verizon

Opportunities with Transcript Data

- ★ Language used in transcripts of earnings calls, announcements and presentations can foreshadow **good** or **bad** things for a company
  - More obvious = “revenues were unexpectedly high” or “operating costs doubled”
  - Less obvious = **OPPORTUNITY**
    - **Sentiment of key players**
    - **Evolution of topics**
    - **Sentiment surrounding topics**



Our Model + Business Value

★ Our model embraces this opportunity with:

1. **Topic Analysis:** To look for patterns in buzzwords
2. **Sentiment Analysis**: To compare language of key speakers + companies on various topics

★ All summarized in visualizations that can be compiled in a **comprehensive dashboard** that can alert...

Journalists to potential discrepancies between companies, investors, and the industry

New investors to potential investment opportunity or peril at the company or industry level

MODEL + ANALYSES

2.

- ★ Data Cleaning
- ★ Judgement Calls within Model
- ★ Sample Output

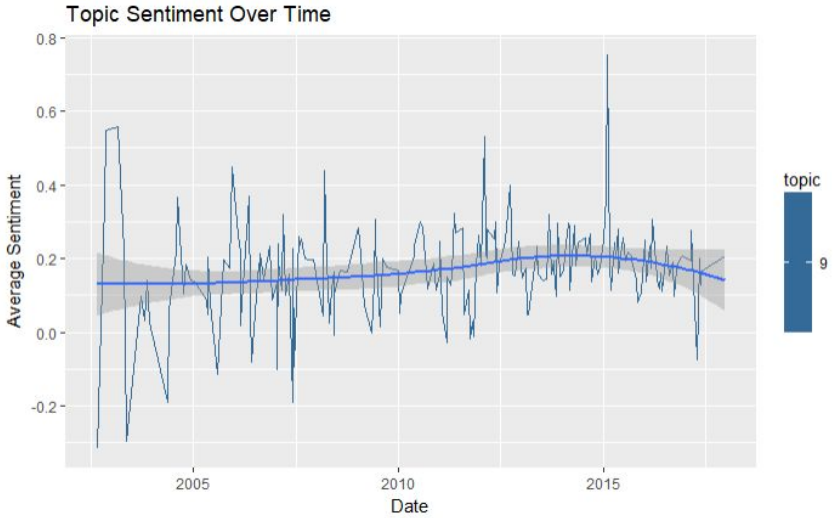
Data Cleaning + Judgement Calls

- ★ **Extracted** text, speaker name, company, etc.
- ★ **Removed** stopwords and low Tf-Idf score words
- ★ **Left annotations in for sentiment use**

Sentiment Analysis + Topic Modeling

- ★ Sentiment analysis using **combined lexicon**
  - **Transcripts talk about more than just financials**
- ★ **Topic modeling performed at speech level**
  - Single transcript can cover multiple topics
  - Produced **nine** distinct topics
  - Filtered non beneficial topics

Sample Output: Visualizations



Showing sentiment overtime for specific topic on “Triple Play” aka bundling

★ Just one example of a flexible customizable visualisation

- Build many together = **DASHBOARD**

BUSINESS VALUE

3.

- ★ Value Proposition: **Comprehensive Dashboard**
- ★ Going Beyond the PoC: Fit for Reorg

$

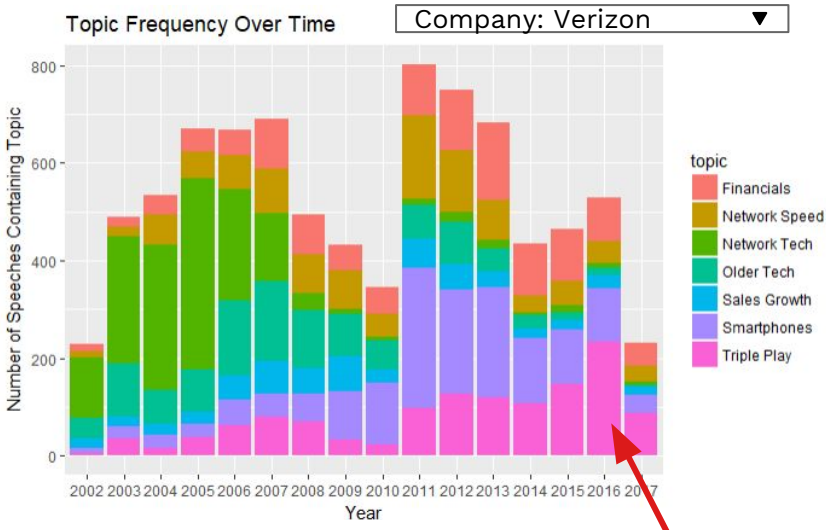
Analysis → Product = Dashboard

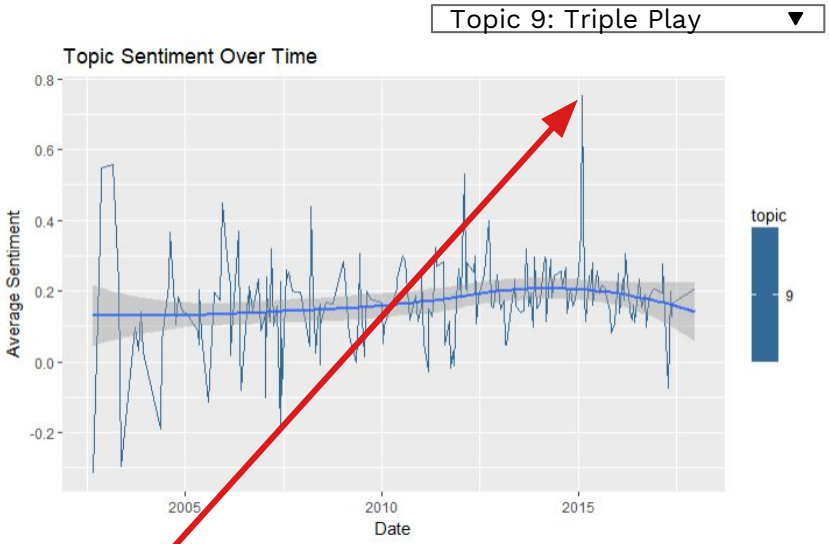
Analysis is broken down into 2 dashboards highlighting KEY COMPARISONS at the...

★ **Industry Level:** Analyze the company against the industry with topic frequency with topic sentiment over time

★ **Company Level:** Compare topic sentiment of company and key investors

INDUSTRY LEVEL DASHBOARD



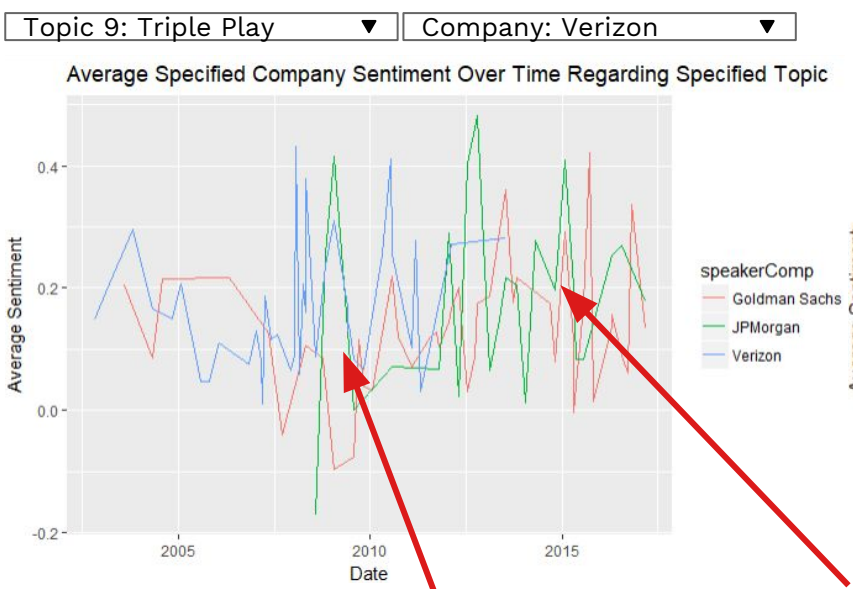


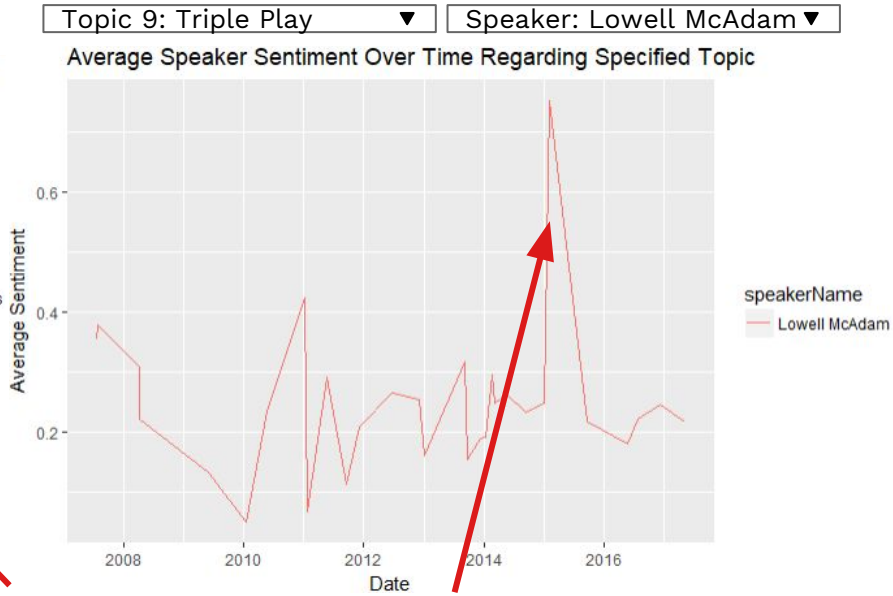
In 2016: Company talking about **Triple Play (bundling)** with **high frequency + low positive sentiment** in Industry **= DON'T INVEST**

INVEST: ⬆ Topic Freq + ⬆ Topic Sent

DON'T INVEST: ⬆ Topic Freq + ⬇ Topic Sent

COMPANY LEVEL DASHBOARD





Only one IB aligned with Verizon = **potential peril**

Both analysts and companies share high sentiment on bundling = **investment opportunity**

INVEST: ↑ Comp Sent + ↑ Analyst Sent

DON'T INVEST: ↑ Comp Sent + ↓ Analyst Sent

How Does This Fit into Reorg Research

"Industry-leading provider of **real-time news, commentary, and analysis** on issues affecting the distressed debt, event-driven and leveraged finance markets."

- ★ Expand analysis to data for other companies + apply industry wide
- ★ Reorg reporters use dashboards when providing news + commentary
  - Then make dashboards available to certain **subscribers**

LIMITATIONS + OPPORTUNITIES

3.

- ★ Limitations
- ★ Possible analyses with additional data integration

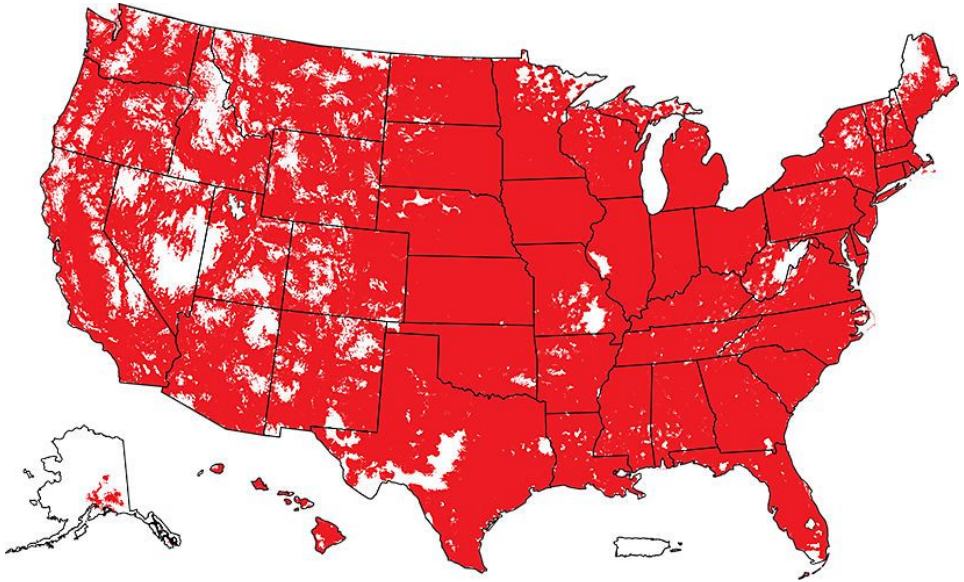
Limitations + Possible Analyses

- ★ Model
  - Trimming bottom 5th of words
  - Sentiment analysis
  - Manual labor associated with topic modeling
- ★ Application
  - Full realization would require very quick, real-time processes

Future opportunities include:

1. Linking historical stock data
2. Compare patterns over topic, speaker, and company sentiment
3. Offer a prediction on stock price based on sentiment + topic analysis

Thank You!



Any questions?