Financial Sentiment Analysis
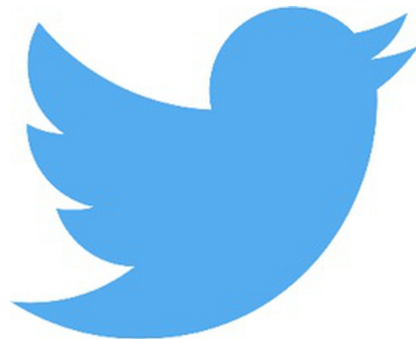
The Problem

Successfully predicting stock price movement can be very profitable.

To what extent can tweets affect a stock price?

Can tweet sentiment be used as a useful indicator to buy or sell stocks?

The Data

Using the Twitter API, we gained access to massive amounts of Twitter data.

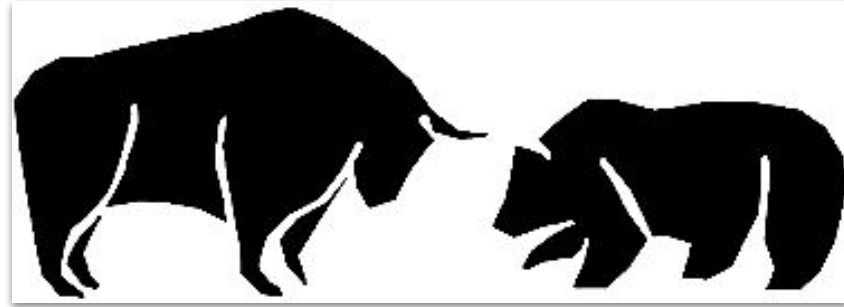We get our stock data by scraping it from the Yahoo! Finance website.

Exploratory Analysis

First, we grouped stocks by sector to see if tweets about certain sectors are more positive/negative.

We looked at the number of tweets that stocks get in one day.

We calculated the correlation between average tweet sentiment and percent change.

Hypothesis about the Data

Focus for today: Comparing US Airline Sentiment

We believe airlines are interesting because there is not much that distinguishes airlines other than their customer service.

Can Twitter sentiment accurately gauge customer experience?

Hypothesis: Airline sentiment is somewhat correlated to stock returns over long periods of time

Supporting Evidence
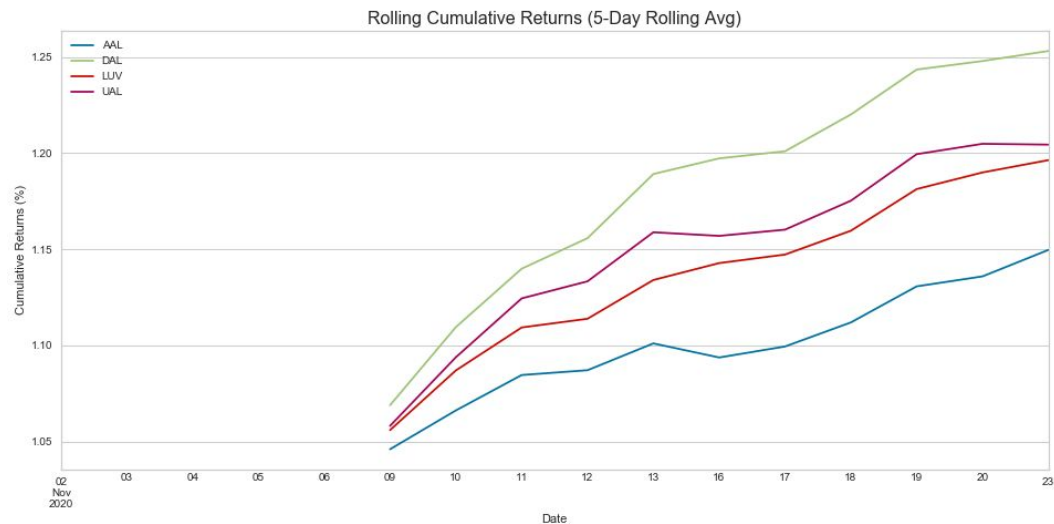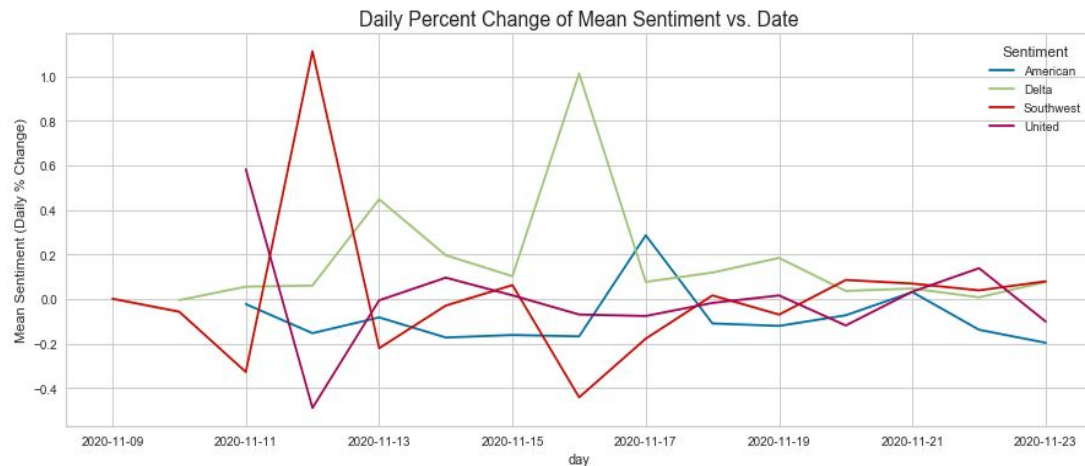
Airline	Net Sentiment Score
American	-0.642950
Delta	-0.491573
United	-0.460059
Southwest	-0.453936

* Based on roughly 30,000 Tweets from 11/09/20 until today

Daily Percent Change of Mean Sentiment vs. Date

Rolling Cumulative Returns (5-Day Rolling Avg)

Important Conclusions to Draw

- We do not have enough sentiment data to make any claims.
- We feel that we laid out the groundwork necessary to approach the problem
- Sentiment is very confusing - a lot to consider (i.e. covid terms like mask)
- In some ways, we have more questions than when we started

Fequency Distribution of Positive Tweet Tokens

Fequency Distribution of Negative Tweet Tokens
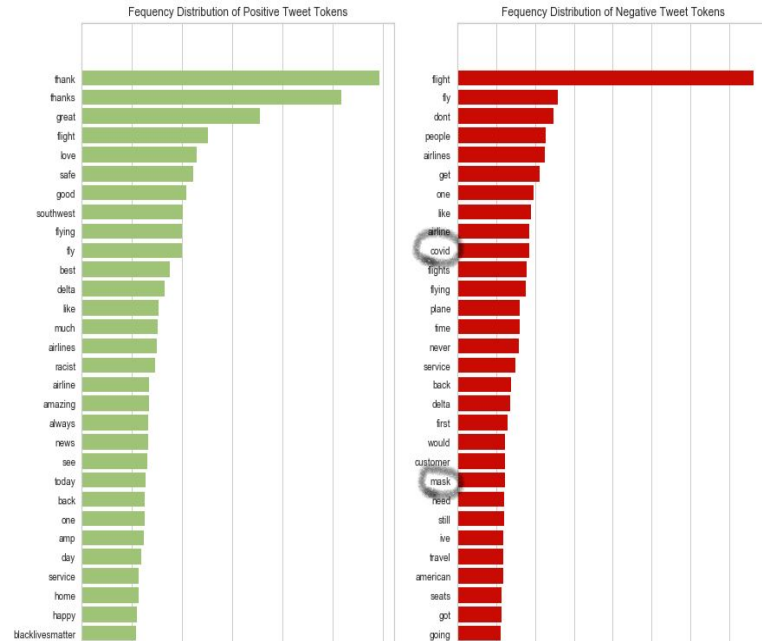
RagingBull @RagingBullSt · 16m
Delta will continue to block middle seats amid 'surging virus'
detroitnews.com/story/business... via @detroitnews