

# ELON TWEET ANALYSIS



Elon Musk, the richest man on Earth with over 107M followers on twitter, uses the platform to share his opinions, often controversial.

But does he wield pricing power?

VS



Presented by:

Ben Gunnels, Greg Richardson,  
Manisha Lal , Quianna Rolston,  
Smruthi Danda & Zehra Vahidy

# QUESTIONS WE HOPE TO ANSWER:

- Does a correlation exist between Elons tweets and stock market reactions ?
- Is it possible to predict whether or not a stock will rise/fall/remain with the sentiment of his tweets?
- Can we design a stock purchase method based on Elons tweets?



VS

A purple diagonal banner with the letters "VS" written in white, with a diagonal slash through them.

# QUESTIONS WE HOPE TO ANSWER:

BONUS

- Do Elons tweets affect companies other than TSLA? (TEST: 'DOGE' + 'TWTR')
- Should we consider Elons tweet history on a certain company before investing?

VS



TWEET DATA  
pulled from



# STOCKS ANALYZED

Tesla (TSLA)

Dogecoin (DOGE)

Twitter (TWTR)

STOCK DATA

pulled from

**yahoo!**  
**finance**

# TWEETS IMPORTED

## Elon\_Tweet\_Sentiment\_Analysis

```
[214...  
import pandas as pd  
from pathlib import Path  
import warnings  
warnings.filterwarnings("ignore")  
import yfinance as yf
```

```
[215...  
elon_tweets_reply = pd.read_csv(Path("../Resources/tweets_and_replies.csv"))  
display(elon_tweets_reply.head())  
display(elon_tweets_reply.tail())
```

	<b>Id</b>	<b>Date</b>	<b>Text</b>	<b>ConversationId</b>
0	1575021541103874048	2022-09-28 07:16:12+00:00	<a href="https://t.co/mEBAgBCCkj">https://t.co/mEBAgBCCkj</a>	1575021541103874048
1	1574958348163612672	2022-09-28 03:05:06+00:00	I guess this joke is a slow burn ... 🤪	1574895951973449729
2	1574957722415398912	2022-09-28 03:02:36+00:00	@WholeMarsBlog Big improvement in high speed c...	1574940528520536064
3	1574956999938256896	2022-09-28 02:59:44+00:00	@chrispavlovski @dbongino @rustyrockets Maybe ...	1574861160502927385
4	1574901832622612480	2022-09-27 23:20:31+00:00	Make "hair on fire" not just a metaphor	1574901832622612480

	<b>Id</b>	<b>Date</b>	<b>Text</b>	<b>ConversationId</b>
7248	1433137351203561474	2021-09-01 18:39:05+00:00	@Kristennetten @StianWalgermo @Tesla @ARKInves...	1433080556376530952
7249	1433123220643717120	2021-09-01 17:42:56+00:00	@thesheetztweetz They can shake their fist at ...	1433081862918975496
7250	1433122554156257280	2021-09-01 17:40:17+00:00	@StianWalgermo @Tesla @ARKInvest @WholeMarsBlo...	1433080556376530952
7251	1433121450446127106	2021-09-01 17:35:54+00:00	@Max9907826460 @TeslaratiTeam Our new crane!	1433001281753337856
7252	1433115031940440065	2021-09-01 17:10:24+00:00	@AaronS5_ @ashleevance 2021 has been the year ...	1433110569100333061

```
[216...  
elon_tweets_reply.info()
```

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7250	1433122554156257280	2021-09-01 17:40:17+00:00	@StianWalgermo @Tesla @ARKInvest @WholeMarsBlo...	1433080556376530952
7251	1433121450446127106	2021-09-01 17:35:54+00:00	@Max9907826460 @TeslaratiTeam Our new crane!	1433001281753337856
7252	1433115031940440065	2021-09-01 17:10:24+00:00	@AaronS5_ @ashleevance 2021 has been the year ...	1433110569100333061

```
[216...  
elon_tweets_reply.info()
```

# TWEETS 'CLEANED'

```
[219...  
def preprocess_tweet(sen):  
    '''Cleans text data up, leaving only 2 or more char long non-stopwords composed of A-Z & a-z only  
    in lowercase'''  
  
    sentence = sen.lower()  
  
    # Remove RT  
    sentence = re.sub('RT @\w+:', ' ', sentence)  
  
    # Remove special characters  
    sentence = re.sub("@[A-Za-z0-9]+|([^\w+\.\/\.\$+])|(\w+\.\.\.\$+)", " ", sentence)  
  
    # Single character removal  
    sentence = re.sub(r"\s+[a-zA-Z]\s+", ' ', sentence) # When we remove apostrophe from the word "Mark's", the apostrophe is replaced by an empty  
    # Remove multiple spaces  
    sentence = re.sub(r'\s+', ' ', sentence) # Next, we remove all the single characters and replace it by a space which creates multiple spaces in  
  
    return sentence  
  
[220...  
cleaned_tweets = []  
  
for tweet in elon_tweets_reply['Text']:  
    cleaned_tweet = preprocess_tweet(tweet)  
    cleaned_tweets.append(cleaned_tweet)  
  
[221...  
elon_tweets_reply['cleaned'] = pd.DataFrame(cleaned_tweets)  
elon_tweets_reply.head(5)  
  
[221...  


|   | Id                  | Date                      | Text                                              | ConversationId      | cleaned                                          |
|---|---------------------|---------------------------|---------------------------------------------------|---------------------|--------------------------------------------------|
| 0 | 1575021541103874048 | 2022-09-28 07:16:12+00:00 | https://t.co/mEBAgBCCkj                           | 1575021541103874048 |                                                  |
| 1 | 1574958348163612672 | 2022-09-28 03:05:06+00:00 | I guess this joke is a slow burn ... 🤪            | 1574895951973449729 | i guess this joke is slow burn                   |
| 2 | 1574957722415398912 | 2022-09-28 03:02:36+00:00 | @WholeMarsBlog Big improvement in high speed c... | 1574940528520536064 | big improvement in high speed cross traffic v... |
| 3 | 1574956999938256896 | 2022-09-28 02:59:44+00:00 | @chrispavlovski @dbongino @rustyrockets Maybe ... | 1574861160502927385 | maybe worth talking at some point                |
| 4 | 1574901832622612480 | 2022-09-27 23:20:31+00:00 | Make "hair on fire" not just a metaphor           | 1574901832622612480 | make hair on fire not just metaphor              |


```

# CALCULATING NEGATIVE, POSITIVE, NEUTRAL AND COMPOUND VALUES

```
#Calculating Negative, Positive, Neutral and Compound values
```

```
elon_tweets_reply[['polarity', 'subjectivity']] = elon_tweets_reply['cleaned'].apply(lambda Text: pd.Series(TextBlob(Text).sentiment))
for index, row in elon_tweets_reply['cleaned'].iteritems():
    score = SentimentIntensityAnalyzer().polarity_scores(row)
    neg = score['neg']
    neu = score['neu']
    pos = score['pos']
    comp = score['compound']
    if comp <= -0.05:
        elon_tweets_reply.loc[index, 'sentiment'] = "negative"
    elif comp >= 0.05:
        elon_tweets_reply.loc[index, 'sentiment'] = "positive"
    else:
        elon_tweets_reply.loc[index, 'sentiment'] = "neutral"
    elon_tweets_reply.loc[index, 'neg'] = neg
    elon_tweets_reply.loc[index, 'neu'] = neu
    elon_tweets_reply.loc[index, 'pos'] = pos
    elon_tweets_reply.loc[index, 'compound'] = comp

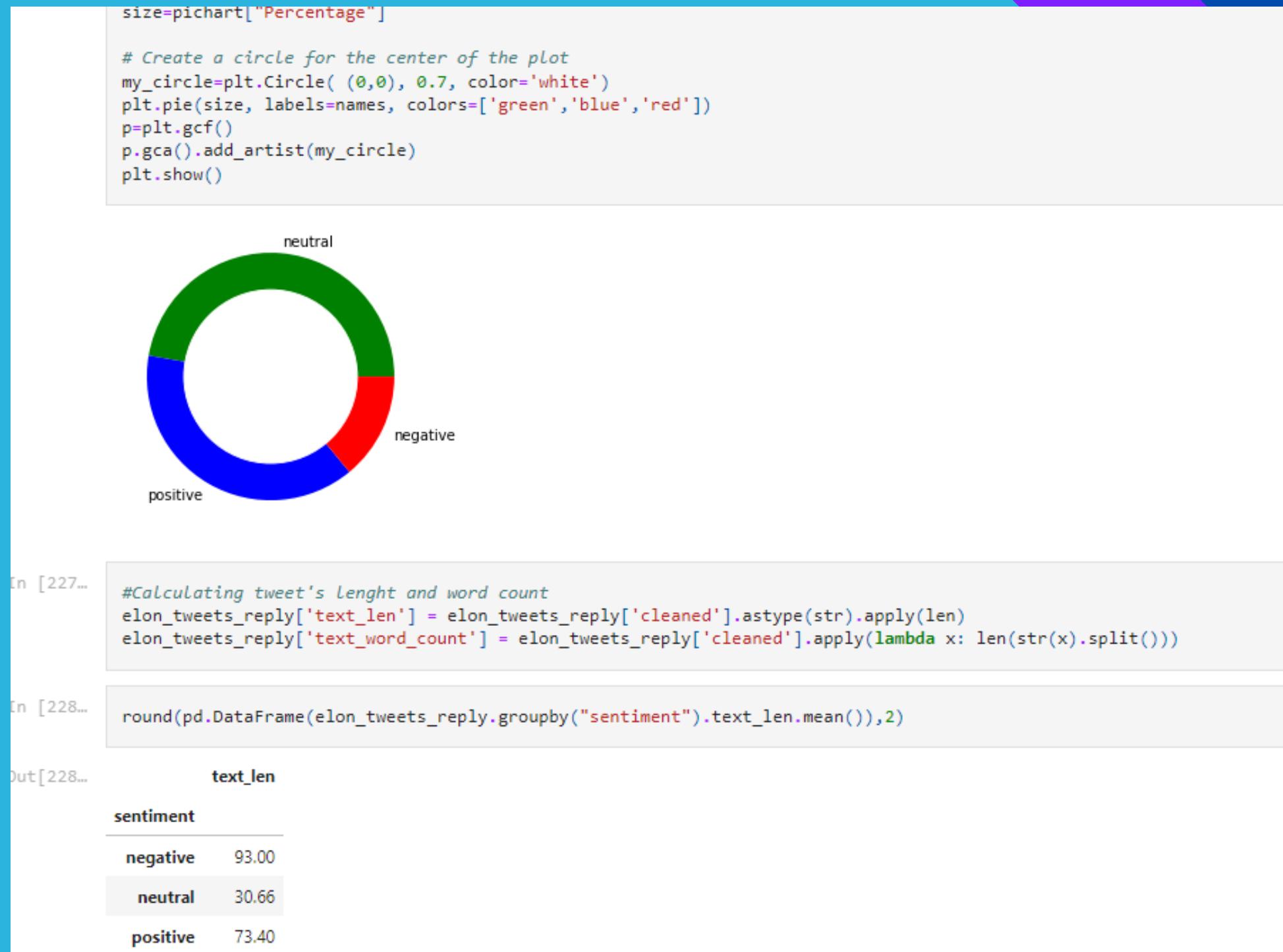
elon_tweets_reply.head(5)[['polarity', 'subjectivity']] = elon_tweets_reply['cleaned'].apply(lambda Text: pd.Series(TextBlob(Text).sentiment))
for index, row in elon_tweets_reply['cleaned'].iteritems():
    score = SentimentIntensityAnalyzer().polarity_scores(row)
    neg = score['neg']
    neu = score['neu']
    pos = score['pos']
    comp = score['compound']
    if comp <= -0.05:
        elon_tweets_reply.loc[index, 'sentiment'] = "negative"
    elif comp >= 0.05:
        elon_tweets_reply.loc[index, 'sentiment'] = "positive"
    else:
        elon_tweets_reply.loc[index, 'sentiment'] = "neutral"
    elon_tweets_reply.loc[index, 'neg'] = neg
    elon_tweets_reply.loc[index, 'neu'] = neu
    elon_tweets_reply.loc[index, 'pos'] = pos
    elon_tweets_reply.loc[index, 'compound'] = comp

elon_tweets_reply.head(5)
```

	Total	Percentage
neutral	3430	47.29
positive	2807	38.70
negative	1016	14.01

	Date	Text	ConversationId	cleaned	polarity	subjectivity	sentiment	neg	neu	pos	compound
0	2022-09-28 07:16:12+00:00	https://t.co/mEBAgBCCkj	1575021541103874048		0.00	0.00	neutral	0.000	0.000	0.000	0.0000
1	2022-09-28 03:05:06+00:00	I guess this joke is a slow burn ... 🤪	1574895951973449729	i guess this joke is slow burn	-0.30	0.40	positive	0.000	0.694	0.306	0.2960
2	2022-09-28 03:02:36+00:00	@WholeMarsBlog Big improvement in high speed c...	1574940528520536064	big improvement in high speed cross traffic v...	0.04	0.16	positive	0.000	0.786	0.214	0.4588
3	2022-09-28 02:59:44+00:00	@chrisspavlovski @dbongino @rustyrockets Maybe ...	1574861160502927385	maybe worth talking at some point	0.30	0.10	positive	0.000	0.725	0.275	0.2263
4	2022-09-27 23:20:31+00:00	Make "hair on fire" not just a metaphor	1574901832622612480	make hair on fire not just metaphor	0.00	0.00	negative	0.286	0.714	0.000	-0.3400

# ELON HAS MORE TO SAY WHEN THINGS AREN'T GOING HIS WAY....



# FIND MORE ON GITHUB

[https://github.com/  
smruthid/ElonTweetAnalysis](https://github.com/smruthid/ElonTweetAnalysis)

The screenshot shows the GitHub repository page for smruthid/ElonTweetAnalysis. The repository is public and contains 5 branches and 0 tags. The main branch has 18 commits. The commit history includes various files like KaggleData, images, .gitignore, LICENSE, README.md, TweetsElonMusk.csv, acetone\_font.otf, doge.csv, doge.ipynb, doge\_hourly.csv, lab.ipynb, requirements.txt, sentiment\_analyzer.ipynb, sentiment\_df.csv, sp500.csv, sp500.ipynb, sp500\_hourly.csv, and sp500\_model\_training.ipynb. The commits range from 2 hours ago to 6 days ago.

The screenshot shows the README.md file for the project. It features a header image with the Twitter logo and a portrait of Elon Musk, with the text "ELON TWEET ANALYSIS". The text describes the project as comparing the sentiments of Elon Musk's tweets against stock market reactions. It also mentions that Elon Musk, the richest man on Earth with over 107M followers on Twitter, uses the platform to share his opinions, often controversial. A tweet from Elon Musk (@elonmusk) is displayed, stating "Tesla stock price is too high imo", which was posted at 11:11 PM - May 1, 2020, via Twitter for iPhone. The tweet has 38.6K Retweets and 204.3K Likes. A callout bubble provides context about the SEC review of the tweet due to potential securities fraud.

## Elon Tweet Analysis

### ELON TWEET ANALYSIS

Elon Musk, the richest man on Earth with over 107M followers on twitter, uses the platform to share his opinions, often controversial.  
But does he wield pricing power?

## BACKGROUND

This is a multi-function jupyter lab notebook (stored as sentiment\_analyzer.ipynb) that compares the sentiments of Elon Musk tweets versus stock market reactions from the individual stocks referenced in his tweets. Elon Musk, the richest man on Earth with over 107M followers on Twitter, uses the platform to share his opinions, often controversial. In addition, Elon was charged with securities fraud by the SEC because of misleading tweets causing price fluctuations.

**Elon Musk** @elonmusk

Tesla stock price is too high imo

11:11 PM · May 1, 2020 · Twitter for iPhone

38.6K Retweets 204.3K Likes

This day Tesla's stock price closed 10 percent lower than the day before. The SEC said the tweet was subject to review since it addressed the company's financial condition. Tesla said it wasn't since it was a "personal opinion."

## PROJECT OVERVIEW

In this notebook we hope to answer the following questions:

- Does a correlation exist between Elons tweets and stock market reactions ?