

# How the Mighty Have Fallen

## Analyzing Twitter Sentiment Data in the Wake of FTX's Bankruptcy and Sam Bankman -Fried's Indictment

## -Fried's Indictment

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### Abstract

This project examines the downfall of Sam Bankman -Fried and his crypto exchange FTX. Once hailed as a boy wonder and savior of the industry, he is now on track for incarceration in federal prison following his indictment on eight counts including wire fraud, securities fraud, money laundering, and more. This project seeks to quantify whether there is a difference between social media sentiment and popular news media sentiment in response to Bankman -Fried's actions, as some have suggested that popular news outlets have covered for him. While attempts to analyze news media sentiment fell short, there is clear evidence that Twitter users became more outraged with SBF after he was exposed in early November.

### Introduction

Sam Bankman -Fried, once a titan of the crypto industry compared to JP Morgan and Warren Buffett, has seen his public image deteriorate over the past several weeks. Bankman -Fried, or "SBF" as he is colloquially known, saw his net worth drop from over \$10 billion in October of 2022 to what is now a little over \$100,000. After Binance CEO Changpeng Zhao voiced his concerns about FTX in early November, investors ran to withdraw their money from their FTX accounts, but it was revealed that there was an \$8 billion hole in FTX's records. SBF, who claimed that FTX backed customer deposits 1:1, had used FTX customer assets to make trades at his crypto trading firm Alameda Research. This usage of customer money to expand his personal wealth and his refusal to let investors withdraw their money has drawn comparisons to Bernie Madoff and his infamous Ponzi scheme. Eventually, Bankman -Fried was arrested on eight counts including wire fraud, securities fraud, money laundering, and more. Additionally, Bankman -Fried was indicted on counts of election fraud. According to the indictment, Bankman -Fried interfered in the 2022 midterm elections, donating over \$40 million to the Democratic Party, including \$27 million to the "Protect Our Future PAC." Bankman -Fried also insists that he made donations to the GOP, but through dark money channels, stating that he was the second or third largest GOP donor this cycle.

This project examines the disconnect between popular news outlets and public opinion towards Sam Bankman -Fried and his actions. Specifically, it analyzes tens of thousands of tweets, parsing their language for sentiment in an attempt to examine the split between news media and popular opinions. Between FTX's declaration of bankruptcy in early November and Bankman -Fried's arrest just days ago, many believed that news outlets like the New York Times were covering for him, stating they were personalizing his faults and expressing empathy towards his cause. Average Twitter users always expressed negative sentiment towards Bankman -Fried, as many believed his actions in the election (and other actions) were corrupt. After Changpeng Zhao exposed FTX and eventually FTX declared bankruptcy, Twitter sentiment analysis data shows a clear drop off in public sentiment, as more and more people turned against Bankman -Fried and took to Twitter to express their discontent. Additionally, many Twitter users voiced their discontent with the New York Times, as they accused the Times of attempting to whitewash Bankman -Fried's image in a series of interviews

### Results

The first topic to explore is SBF's influence on the election. The graph below shows Twitter sentiment in tweets that contain the terms "SBF" and "election." The tweets were scraped backwards, meaning that the most recent tweets were scraped first, and then older ones were scraped after that. The graph below shows the general trend in sentiment over time, as the sentiments of the oldest tweets are shown on the left of the graph, and the sentiments of the most recent tweets are shown on the right of the graph. The graph shown below is a rolling average, meaning that a tweet's sentiment is also weighted by the tweets that directly precede and succeed it. The result is a graph that shows how general popular sentiment surrounding a given topic has changed over time. To perform sentiment analysis, algorithms such as VADER, TextBlob, DistilBERT, and RoBERTa were used. As all of the models showed the same general trends, RoBERTa, the most robust model, was used. Figure 1 below shows how sentiment has changed over time in tweets containing the terms "SBF" and "Election."



This tweet comes from the peak in sentiment on the left side of figure 1, and it was tweeted just after FTX declared bankruptcy. Although this tweet comes from a peak, the general sentiment is negative. Many Twitter users voiced their concerns over "stolen money" in the midterm elections.



This tweet comes from the valley following the large drop off on the left side of the figure 1. It comes just days after the peak in sentiment, showing just how quickly the public sentiment towards SBF and his influence in the election changed. Many tweets, including this one, spoke of a "connection to Ukraine," perhaps fueling conspiracy theories about how SBF's influence in the election will US foreign diplomacy in the region.

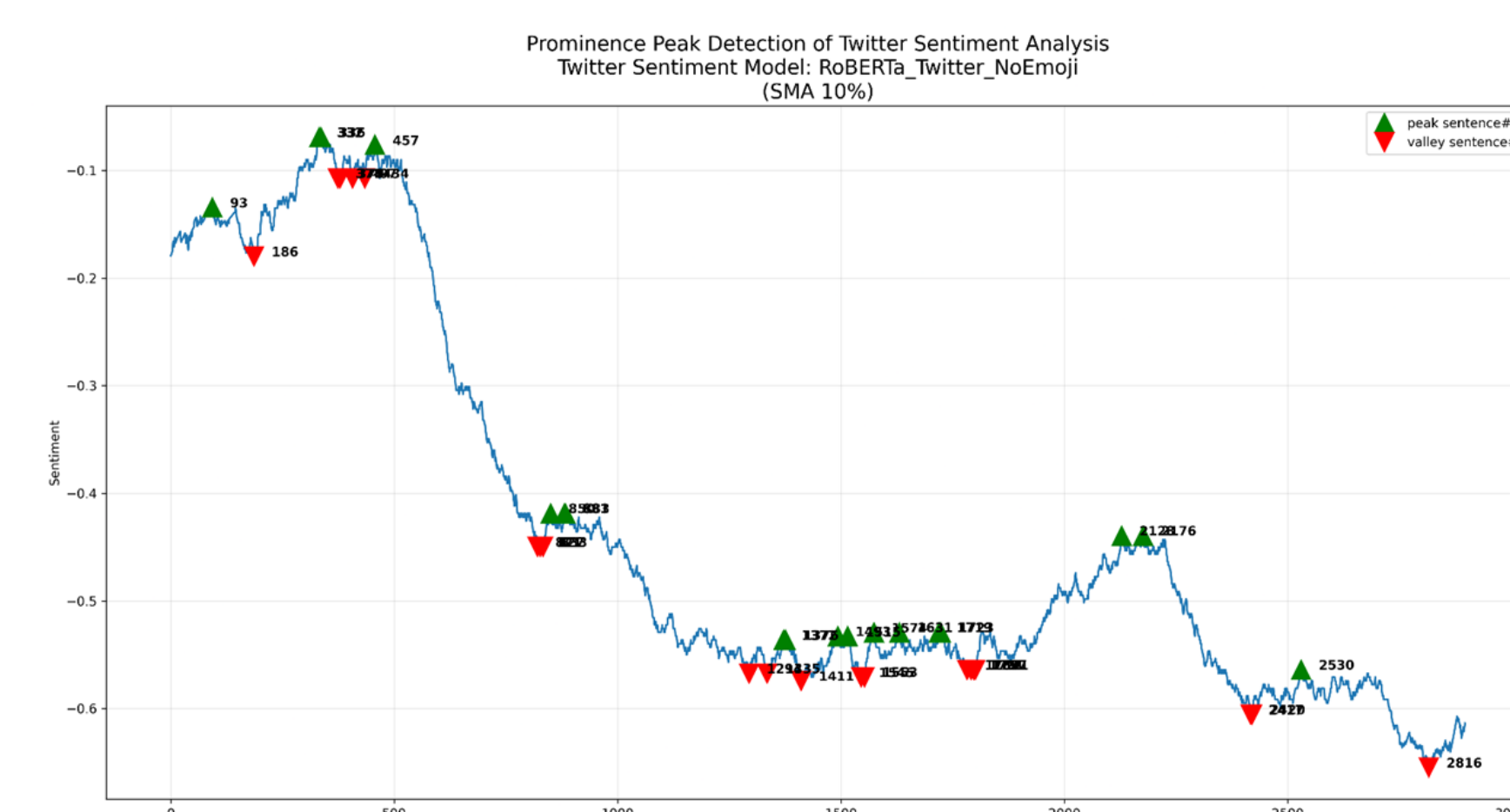


Figure 1: A graph showing sentiment trend over time in tweets including the terms "SBF" and "Election."

### Results (continued)

Originally, this project wanted to compare the sentiment surrounding Sam Bankman -Fried from the average Twitter user's perspective, and then compare that to the sentiment in newspapers and popular journalism across the United States as they cover the happenings of the FTX collapse. Anecdotally speaking, many people felt that the popular news media were covering for SBF, believing they painted him as a precocious boy with big aspirations whose crypto empire expanded too quickly and subsequently crumbled. However, sentiment analysis tools for newspapers and articles were found to be rudimentary and unfit for the same sort of sentiment analysis done on tweets here. As a result, tweets containing the terms "SBF" and "New York Times" were analyzed as a substitute. The results are shown in figure 2 below.



This tweet actually came from the peak in sentiment in figure 2 around tweet #2,295. The tweet comes from a Twitter user lambasting the New York Times for their handling of a November 14th interview of Sam Bankman -Fried. Many considered the interview a "puff piece" where SBF got to salvage his own image. Consequently, many users took to Twitter to voice their displeasure with the Times.



The lowest sentiment point came after New York Times journalist Andrew Ross -Sorkin announced he would interview SBF at their Dealbook Summit on November 30th. Many of the tweets underneath that announcement resembled the one above by Twitter user @raisedbynorway.. Because of how fierce the reaction these interviews were, much of the sentiment analyzed does not represent the Times' attitude, but rather the average attitudes of Twitter users toward the New York Times.

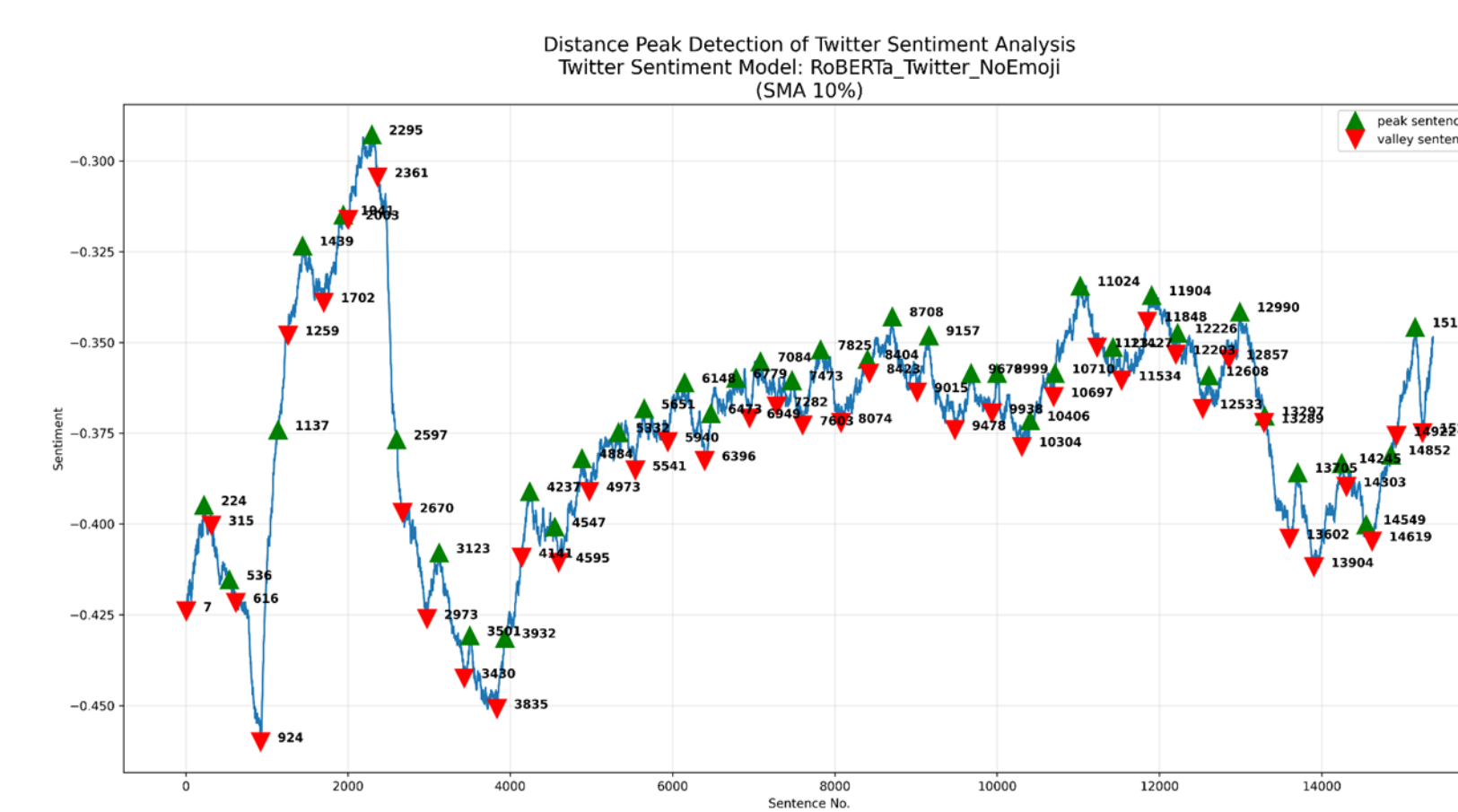


Figure 2: A graph showing sentiment trend over time in tweets including the terms "SBF" and "New York Times."

### Conclusion

Regardless of the search terms used, sentiment surrounding Sam Bankman -Fried has not been positive. In the first graph analyzing sentiment surrounding Bankman -Fried and the 2022 midterm election cycle, there was a clear drop off in public opinion directly after election day, reaching a valley after Bankman -Fried declared bankruptcy. Bankman -Fried's usage of customer money to influence the election cycle was not taken kindly by many, especially by conservatives, as nearly all of Bankman -Fried's ~\$40 million of public donations went toward Democratic causes. Although he claims to have donated just as much money to Republican candidates through dark money channels, that did not stop many conservatives from voicing their chagrin following the election. On the graph of sentiment in tweets containing the terms "SBF" and "New York Times," there was another clear drop off in sentiment. This drop off occurred after the New York Times ran an interview with Bankman -Fried detailing what went wrong and what life was like now that his crypto exchange had collapsed. Many thought the article humanized and personalized Bankman -Fried, as they asked him how he was sleeping, and what he thought went wrong, letting Bankman -Fried decide what narrative to put forth. He went on -record stating that he was a little too busy to see the risk in his investments and margin positions, and that he did not knowingly commit any fraud, even if he actually did. Bankman -Fried's shirking of responsibility —along with the New York Times handling of the interview —outraged many, and contributed to the drop in average sentiment between November 16th and November 23rd. Because of a lack of adequate newspaper scraping and sentiment analysis tools, it was difficult to graph New York Times' sentiment. Rather, the graph produced shows Twitter user attitude towards the New York Times coverage of SBF. Across the board, sentiment towards Sam Bankman -Fried has not been positive, and it has fallen off a cliff after the gross underbelly of his previous crypto savior image was exposed.

### Future and Ethics Statement

The story surrounding Sam Bankman -Fried is in its infant stages, as he was arrested just four days ago in the Bahamas. As his court proceedings progress, his publicity will only increase. As a result, the number of tweets about him will continue to grow, providing more and more data for future analyses. Additionally, the original aim of this study —to contrast public sentiment with news media sentiment —was not yet possible, as the code used to dissect newspapers for sentiment was not working to the caliber desired. In the future, I would like to develop code to dissect newspapers so I can accomplish the original goal of this project.

### References/Acknowledgements

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Chun, Jon. "SentimentArcs: A Novel Method for Self -Supervised Sentiment Analysis of Time Series Shows SOTA Transformers Can Struggle Finding Narrative Arcs." ArXiv, Cornell University, 18 Oct. 2021, <https://arxiv.org/abs/2110.09454>.

Additional Resources: <https://tinyurl.com/ms2nxvcd>