

ABSTRACT

Since the Israeli attacks on Palestine in October 2023, the wave of boycotts against products allegedly affiliated with Israel, including Starbucks, has intensified, impacting business operations and the company's stock price decline. The widespread boycott on social media, particularly on Twitter, serves as a critical background for analyzing the relationship between public sentiment and Starbucks' stock price movements.

This study examines the relationship between public sentiment on Twitter and the stock price movements of Starbucks Corporation (SBUX) using sentiment analysis and machine learning techniques. Data collection was conducted from January 2023 to June 2024, gathering a total of 997,760 tweets containing the keywords "SBUX" or "Starbucks" for sentiment analysis and classification. Of this total, 718,584 tweets from January 2023 to December 2023 were used to train the model, while 279,176 tweets from January 2024 to June 2024 were used for testing and correlation analysis with the corresponding stock price data. The stock price data from January to June 2024 was obtained from Yahoo Finance, comprising 124 daily data points and 868 hourly data points.

The sentiment classification model employed was Multinomial Naïve Bayes, achieving an accuracy of 75% with an AUC (Area Under the Curve) score above 0.90, indicating strong model performance. However, the results of the relationship testing between sentiment and stock price movements using the Goodman-Kruskal Lambda test showed values below 0.1. This suggests that there is no statistically significant relationship between sentiment and stock price movements, whether on a daily or hourly timeframe. These findings indicate that, in this specific case, sentiment on social media such as Twitter may not be a reliable predictor for stock price movements, especially within the context of external socio-political factors influencing public perception of Starbucks.

Keywords: Sentiment Analysis, Twitter, Stock Price, Starbucks, Machine Learning, Multinomial Naïve Bayes, Lambda Test