

Trader Behaviour vs Market Sentiment – Analysis Report

Name: Hemanth Surnidi

1. Introduction

This project looks at how trader activity changes when the market sentiment is in “fear” or “greed”. I used two datasets: one with daily sentiment values and another with detailed trade records. The idea was to check whether things like trade volume, win rate, and profit look different between sentiment types, and whether any simple pattern can be used for prediction.

2. Dataset Overview

The sentiment dataset had a date column and a classification column which marked each day as either fear or greed.

The trader dataset had information like account, coin, execution price, size in tokens and USD, side, timestamp, starting position, direction, and the pnl of each trade.

The sentiment dataset was small. The trader dataset was much bigger and contained multiple trades per account per day. Some columns needed type fixes because they were strings.

3. Data Preparation

I converted the sentiment date column into datetime format.

For the trader dataset, I converted the timestamp column into datetime and created a new date column from it.

I also selected useful columns and renamed a few of them to shorter names so they are easier to work with.

I added a “win” column based on whether the pnl was greater than zero. This helped later when calculating win rates.

4. Daily Aggregation

I created a daily summary with trade count, total USD volume, average trade size, average pnl, median pnl, and win rate. After merging with the sentiment dataset, I saw that the daily dataset was very small, so it was not enough for training any model. But it still helped to look at general differences between fear and greed days.

5. Account-Day Aggregation

Since daily rows were too few, I created account-day level data.

This means each row represents one account on one day.

For each account-day, I calculated:

- number of trades
- total volume in USD
- average trade size
- average pnl
- win rate

This dataset had many more rows and was more useful for modeling.

6. Sentiment-Based Comparison

I plotted a time series of total volume split by sentiment.

Greed days generally showed higher activity compared to fear days, especially in terms of volume.

I also checked average pnl using box plots. The values varied, and there wasn't a very strong or clean separation just from the plot. Still, it helped to visualize how pnl behaves under each sentiment.

I ran t-tests for average pnl, total volume, and win rate between fear and greed. The results showed differences, but not all of them were statistically strong. Still, the overall trend suggested higher activity on greed days.

7. Simple Model

I used the account-day dataset to build a logistic regression model.

The target was whether the account had positive average pnl that day.

The features were number of trades, total USD volume, average trade size, and win rate.

After training and testing, the model gave a basic accuracy score.

The model coefficients showed which features were helping the prediction more. The model was simple and not meant to be used in real trading, but it helped check whether the features had any predictive value.

8. Observations

- Greed days tend to have higher trading activity.
- Fear days generally show lower volumes.
- Win rate and pnl do not always move together with sentiment, but there are some differences.
- Account-day data gives a clearer view than daily data because it has more rows.
- The model worked, but accuracy was not very high, which is expected in real trading data.

9. Limitations

- The sentiment dataset had very few rows, which limited daily analysis.
- The trader dataset might not include every type of event or detail.
- The model was simple and does not capture deeper market patterns.
- More historical days would give better conclusions.

10. Conclusion

This assignment helped connect market sentiment with actual trader actions. While some patterns appeared — like higher activity in greed periods — the relationship between sentiment and profit is not straightforward. A simple model can capture small patterns, but more data and more advanced methods would be needed for stronger predictions. Overall, the analysis shows that sentiment does influence behaviour, but not in a perfectly predictable way.