

Data Science Report: Trader Behaviour vs. Market Sentiment

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Objective

To analyse the relationship between trader behaviour (profitability, volume, and directional bias) and overall market sentiment, using historical trade data from Hyper liquid and the daily Fear & Greed Index.

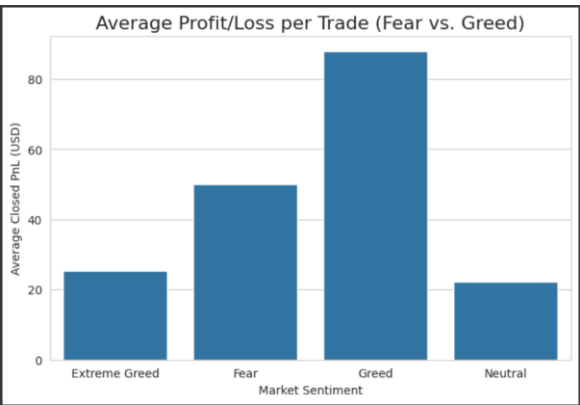
Data Preparation

The analysis began by loading two distinct datasets: historical trader data and the time-series Fear & Greed Index. The following key preparation steps were performed:

- Timestamp Conversion:** The raw Unix timestamp (in milliseconds) from the trader data was converted into a standard, human-readable datetime format.
- Date Aggregation:** A separate 'Date' column was created from the full datetime to allow for daily aggregation.
- Data Merging:** The trader dataset was merged with the Fear & Greed Index dataset on their common 'Date' column. This created a single, unified dataset that links each individual trade to the market sentiment on the day it occurred.

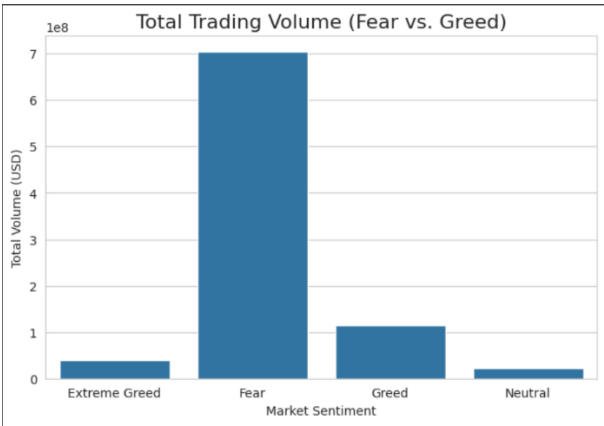
Key Findings & Analysis

1. Profitability Analysis



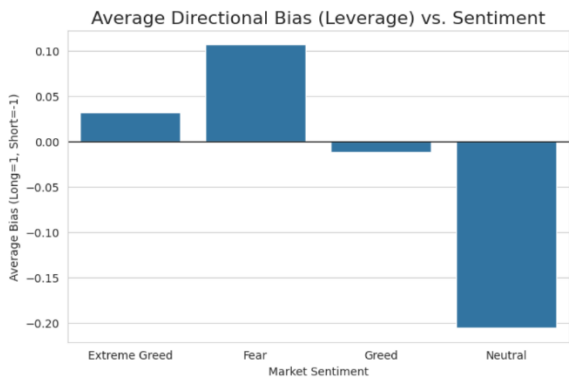
Finding: The analysis reveals a strong correlation between market sentiment and profitability. The average profit per trade was highest during periods of '**Greed**' (averaging over \$80), suggesting that traders in this dataset were most successful when market optimism was high. Conversely, profitability was lowest during 'Neutral' and 'Extreme Greed' phases.

2. Trading Volume Analysis



Finding: The data indicates that market **'Fear'** is the single largest driver of trading activity. The total trading volume during fearful periods was dramatically higher than in any other sentiment category combined, suggesting that volatility and uncertainty trigger the highest levels of market participation.

3. Leverage & Directional Bias Analysis



Finding: Trader bias shifts significantly with market sentiment. During periods of **'Fear'**, traders showed a strong positive bias, indicating a tendency to open long positions ("buy the dip"). In contrast, during **'Neutral'** periods, traders exhibited a strong negative bias, favouring short positions. This suggests a strategic shift from optimism in downturns to pessimism in stable conditions.

Conclusion

This investigation reveals that market sentiment is a powerful influencer of trader behaviour, though not always in expected ways. The most significant finding is that **fear, not greed, drives the highest trading volume**, indicating that periods of panic and volatility are the most active. While traders are most profitable during periods of 'Greed', they also exhibit a strong counter-trading impulse, with a clear tendency to "buy the dip" during fearful conditions.