Trader Behavior vs Market Sentiment Analysis

1. Objective

The objective of this analysis is to understand how trader behavior changes under different Bitcoin market sentiment conditions, specifically Fear and Greed. The focus is on identifying differences in trader profitability, risk-taking, and performance during these market phases.

2. Data Overview

Two datasets were used in this analysis:

1) Bitcoin Fear and Greed Index, which provides daily market sentiment classification.

2) Historical trader data from Hyperliquid, containing individual trade-level information such as trade size, direction, and realized profit and loss.

The datasets were merged using the trade date to assign a market sentiment to each trade.

3. Key Findings

- Traders are significantly more profitable during Greed periods compared to Fear periods.
  A two-sample t-test confirms that this difference is statistically significant (p < 0.001).
- Average trade size is higher during Greed markets, indicating increased risk-taking behavior.
- Win rate is lower during Fear periods, suggesting that uncertainty negatively impacts trader performance.
- Overall, market sentiment has a strong influence on both profitability and trading behavior.

4. Trading Recommendations

- Traders should reduce position size and risk exposure during Fear-driven market conditions.
- Market sentiment can be used as a high-level signal to adjust risk management strategies.
- Greed periods may offer better opportunities for aggressive strategies, but require strict risk controls.

5. Limitations and Future Work

- The analysis does not include Bitcoin price or volatility data, which could provide additional context.

- Results are based on historical data and may not generalize to all market conditions.

- Future analysis could incorporate price trends, volatility indicators, and trader clustering to improve strategy insights.

6. Conclusion

This study demonstrates that market sentiment plays a significant role in shaping trader behavior. Incorporating sentiment analysis into trading decisions can help improve risk management and overall trading performance.