

Data Science Report: Analyzing Trader Behavior and Market Sentiment

1. Objective

The primary objective of this study is to analyze how trading behavior—specifically profitability, risk, volume, and leverage—aligns or diverges from overall Bitcoin market sentiment, categorized as Fear vs. Greed.

2. Dataset Overview

- **Bitcoin Market Sentiment Dataset:** Contains daily classifications including Extreme Greed, Fear, Greed, and Neutral.
- **Historical Trader Data (Hyperliquid):** Includes granular metrics such as execution price, trade size, side, and closed PnL.

3. Key Findings

3.1 Profitability (PnL) vs. Sentiment

Analysis of the average Profit and Loss (PnL) indicates that traders achieve the highest profitability during **Greed** phases. Profitability appears to drop significantly during periods of **Extreme Greed** and **Neutral** sentiment, suggesting that while "Greed" provides a productive environment for gains, "Extreme Greed" may signal an overextended market where profit-taking becomes more difficult.

3.2 Risk and Leverage

Leverage usage shows a stark divergence based on sentiment:

- **High Risk in Fear/Greed:** Traders utilize substantially higher leverage—peaking during **Fear** and **Greed** periods—reaching levels near 800x to 900x.
- **Low Risk in Extremes:** Interestingly, leverage usage is significantly lower during **Extreme Greed** and **Neutral** phases, suggesting a more cautious or "wait-and-see" approach during peak market euphoria or indecision.

3.3 Trading Volume Trends

There is a clear preference for higher activity during market distress and euphoria:

- Average trading volume is highest during **Fear** and **Extreme Greed** phases.
- Volume is nearly halved during **Greed** and **Neutral** phases. This indicates that traders are most active when the market is either highly fearful or highly euphoric, likely attempting to capture volatility.

4. Strategic Insights

Based on the identified trends, a "smarter trading strategy" might involve:

- **Counter-Leverage:** Reducing leverage during "Fear" and "Greed" phases where most traders are over-leveraged and prone to liquidation.
- **Volatility Capture:** Capitalizing on the high volume during "Fear" periods, where profitability remains moderate but liquidity is high.

5. Conclusion

Traders on Hyperliquid tend to increase both volume and leverage during periods of high sentiment (Fear/Greed), but the highest PnL is realized during steady "Greed" rather than "Extreme Greed." This suggests that "Extreme Greed" serves as a hidden signal for a "cooling off" period where profitability diminishes despite high volume.