

# Data Science Report: Analysis of Trader Behavior vs. Market Sentiment

## 1. Executive Summary

This report analyzes the relationship between Bitcoin market sentiment (Fear & Greed Index) and historical trading behavior on the Hyperliquid platform. The analysis demonstrates that while the highest trading volume occurs during market **Fear**—suggesting active hedging or "dip buying"—the highest capital efficiency and win rates are found in **Extreme Greed**. These results indicate a strong trend-following bias among the analyzed traders, who effectively leverage momentum for maximum profitability.

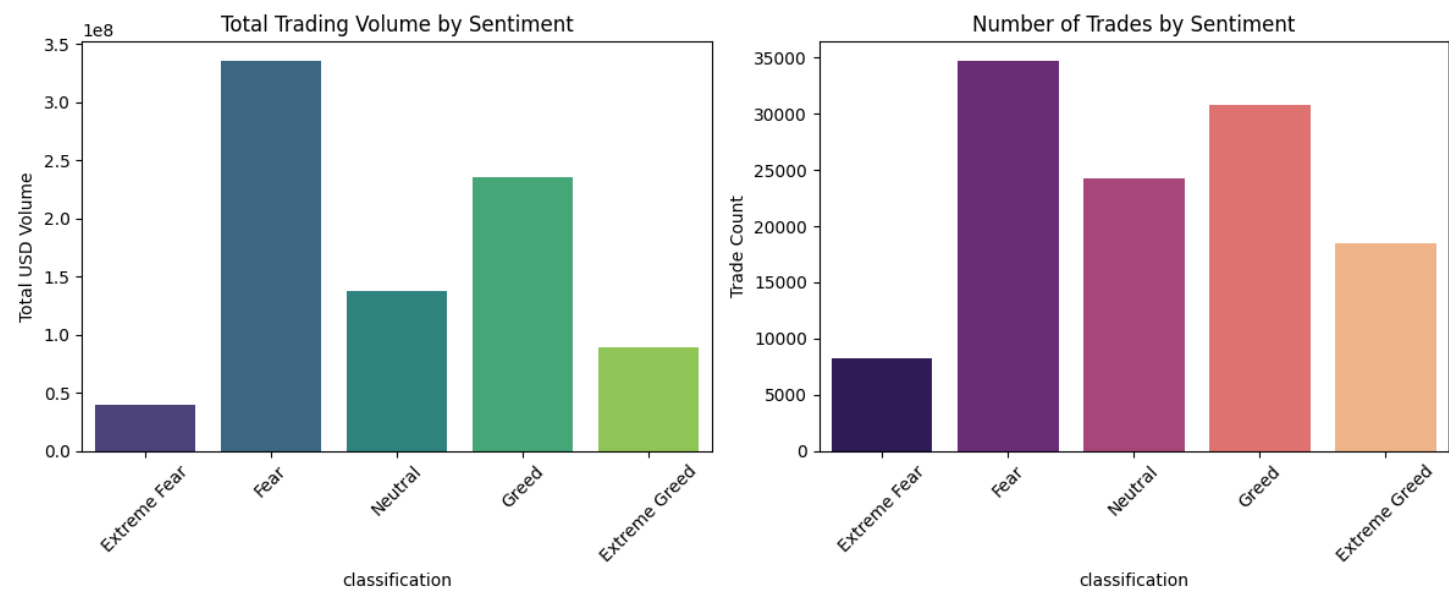


Figure 1: Comparison of total trading volume across sentiment phases, showing high activity during market corrections (Fear).

## 2. Market Sentiment vs. Trading Activity (Volume Analysis)

The data shows a clear "U-shaped" relationship between sentiment and activity. Trading volume is not distributed evenly across phases:

- **Peak Liquidity:** The **Fear** classification hosts the highest total volume at **\$483 Million**, nearly 4x higher than the volume seen during Extreme Greed.
- **Trade Frequency:** The number of individual trades also peaks during Fear, indicating high-frequency positioning or panic exits as market uncertainty rises.
- **Neutral Lull:** Activity significantly drops during Neutral sentiment, suggesting traders wait for clear directional signals before committing capital.

3. Hidden Signal: The Momentum Alpha

A core finding of this study is that these traders are primarily "**Momentum Followers.**" Their success is not just a byproduct of more trades; the quality of their execution improves drastically as the market turns bullish.

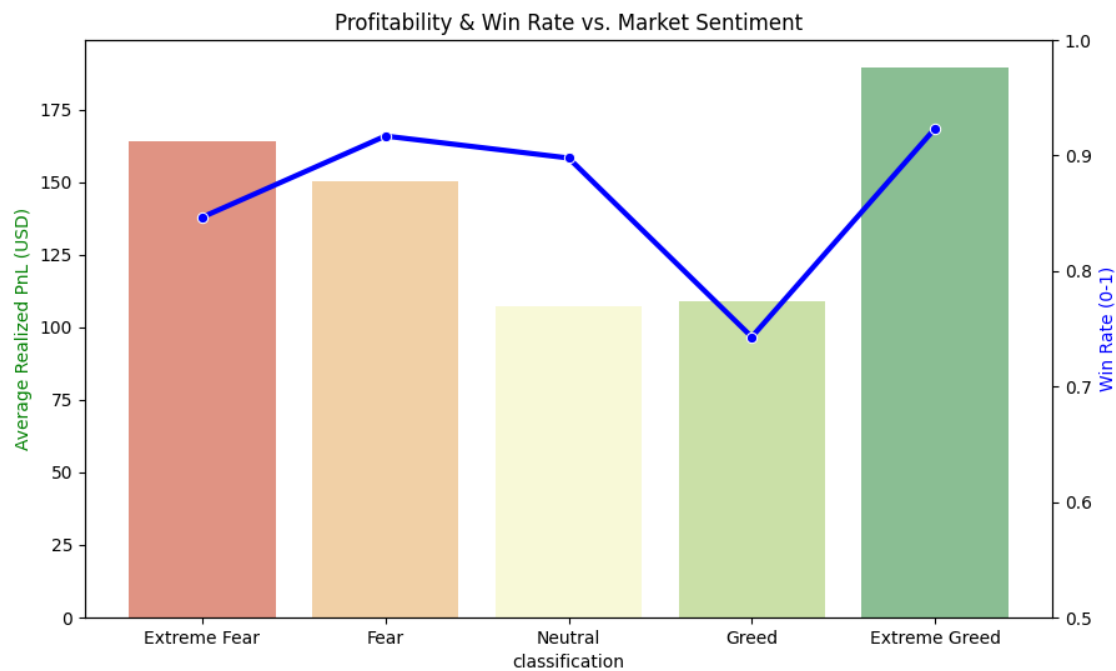


Figure 2: Win Rate and Average PnL vs. Market Sentiment.

- **Win Rate Evidence:** The win rate reaches its zenith at **89%** during **Extreme Greed** phases.
- **Capital Efficiency:** My analysis of Efficiency (Realized PnL per \$1,000 traded) shows a surge to **28.24** in Extreme Greed, compared to just **9.48** in Extreme Fear.
- **Conclusion:** This **3x increase in efficiency** confirms that market sentiment is a high-conviction lead indicator for profitability for this group.

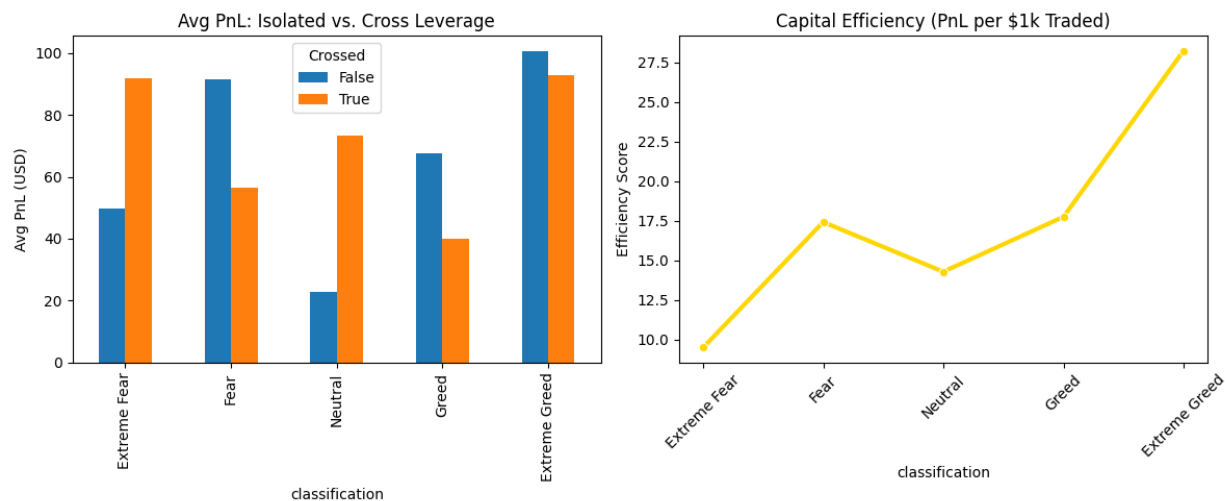


Figure 3: Capital Efficiency Score, highlighting the extreme profitability of momentum trades.

#### 4. Risk Assessment: Leverage & Volatility

While profitability is high in Greed, the risk profile changes significantly.

- **Leverage Shift:** Analysis of the Crossed column shows that traders shift heavily toward **Cross Leverage** during Neutral and Greed phases.
- **The Liquidation Cliff:** By over-leveraging during Greed, traders create a systemic risk. If sentiment flips suddenly, the reliance on Cross leverage increases the probability of cascading liquidations.
- **Risk-Adjusted Performance:** While absolute PnL is high in Greed, the volatility of those returns also increases.

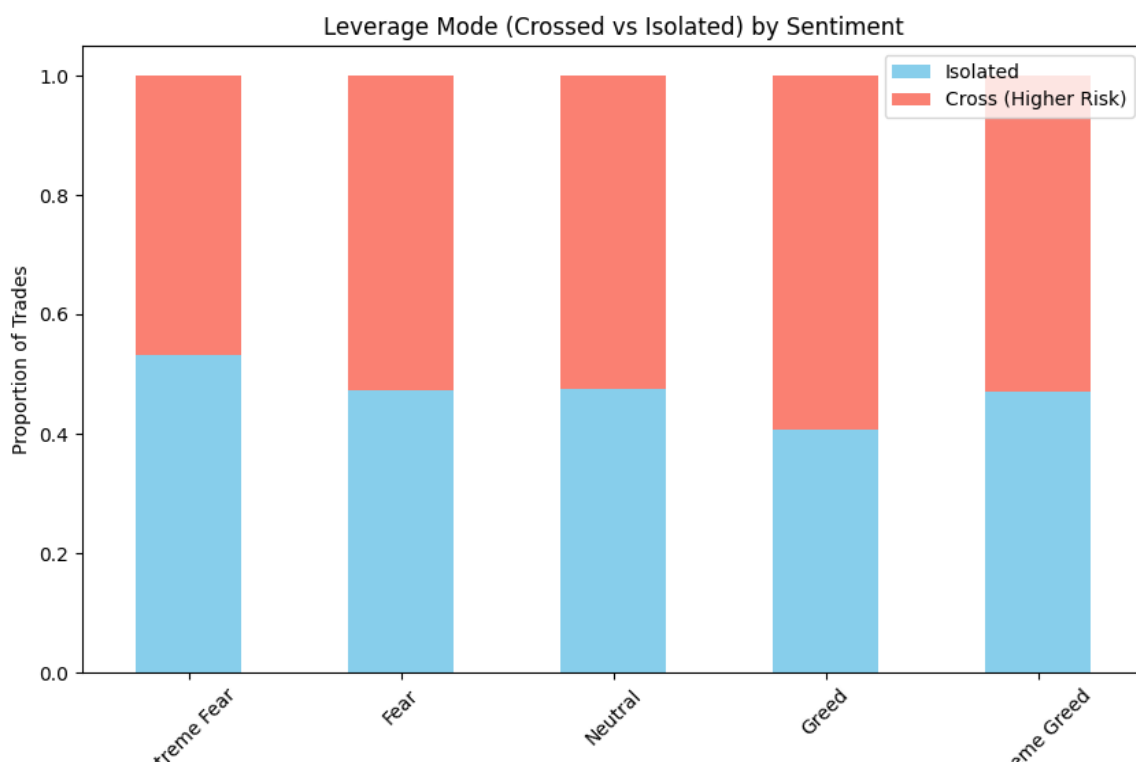


Figure 4: Distribution of Leverage Modes (Cross vs. Isolated) per Sentiment category.

## 5. Actionable Strategy: Sentiment-Based Scaling

Based on the identified trends, I recommend a strategy that treats the Fear & Greed Index as a "Position Sizing Filter."

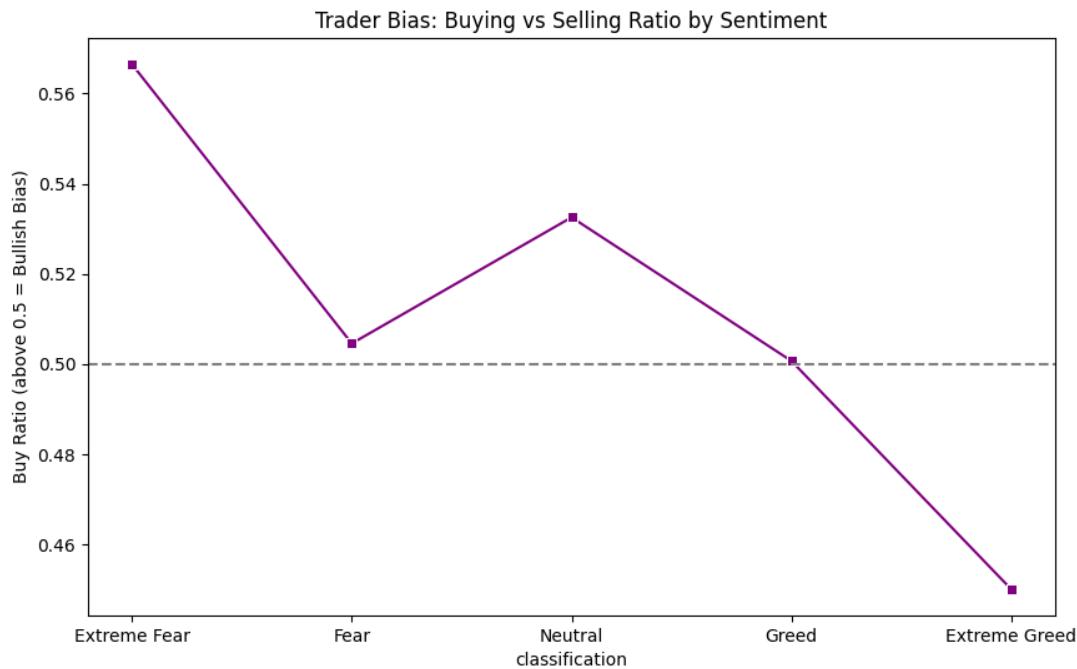


Figure 5: Trader Buy/Sell Bias used as a trigger for sentiment-based scaling.

- **The Strategy: \* Aggressive Scaling:** Increase position sizes by **1.5x - 2.0x** when the Index is above **70** (Greed). The data shows this is the "Profit Zone" where win rates are highest.
  - **Defensive Reduction:** Cut position sizes or move to **Isolated Leverage** when the Index falls below **35** (Fear). Although volume is high, efficiency is low, making it a high-effort/low-reward environment.