

# Trader Performance vs Market Sentiment Analysis

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This report analyzes the relationship between Bitcoin market sentiment and trader performance, providing insights for smarter Web3 trading strategies.

## 1. Problem Statement

The goal of this analysis is to explore how market sentiment (Fear/Greed) influences trading behavior and performance metrics such as trade volume, position size, and profitability. Understanding these patterns can help traders and platforms make more informed decisions.

## 2. Dataset Description

1. Bitcoin Market Sentiment Dataset:

- Columns: Date, Classification (Fear, Greed, Extreme Fear, Extreme Greed, Neutral)

2. Historical Trader Data from Hyperliquid:

- Columns: account, symbol, execution price, size, side, time, start position, event, closedPnL, leverage, etc.

## 3. Methodology

1. Data Loading: Imported both sentiment and trading datasets into Python.
2. Data Cleaning: Handled missing values, standardized column names, and converted date/time formats.
3. Data Merging: Combined datasets on matching date fields to align sentiment with trader data.
4. Feature Engineering: Calculated trade volume in USD, aggregated statistics, and categorized market sentiment.
5. Visualization: Created bar plots and box plots to identify trends and compare performance across sentiments.
6. Insights Extraction: Summarized key findings for strategy recommendations.

## 4. Key Findings

- Total trades analyzed: 211218
- Most common market sentiment: Fear

- Highest average PnL in: Extreme Greed
- Largest average position size in: Extreme Greed- Highest total trade volume in: Fear

## 5. Visualizations

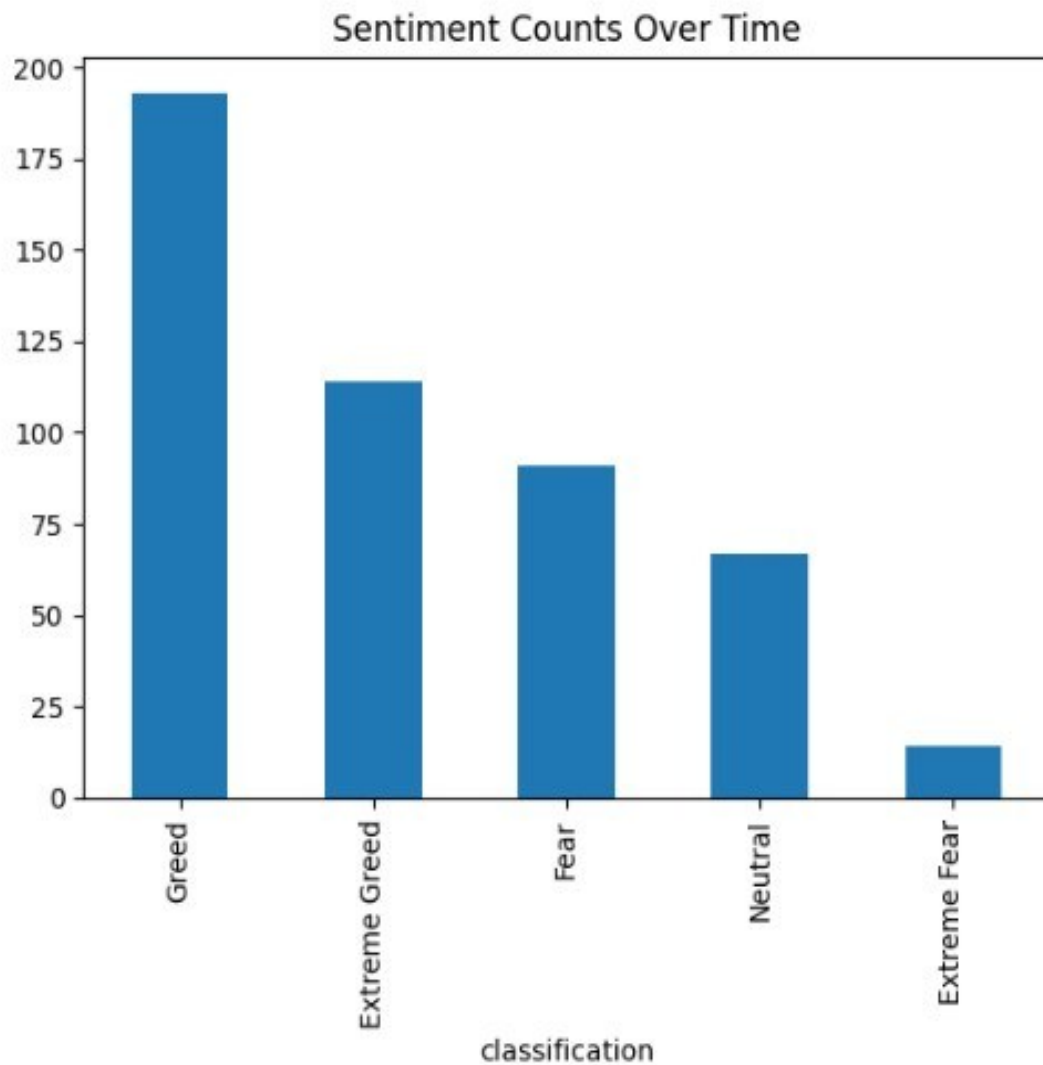


Figure 1: Sentiment Counts Over Time



Figure 2: Total Trade Volume (USD) by Market Sentiment

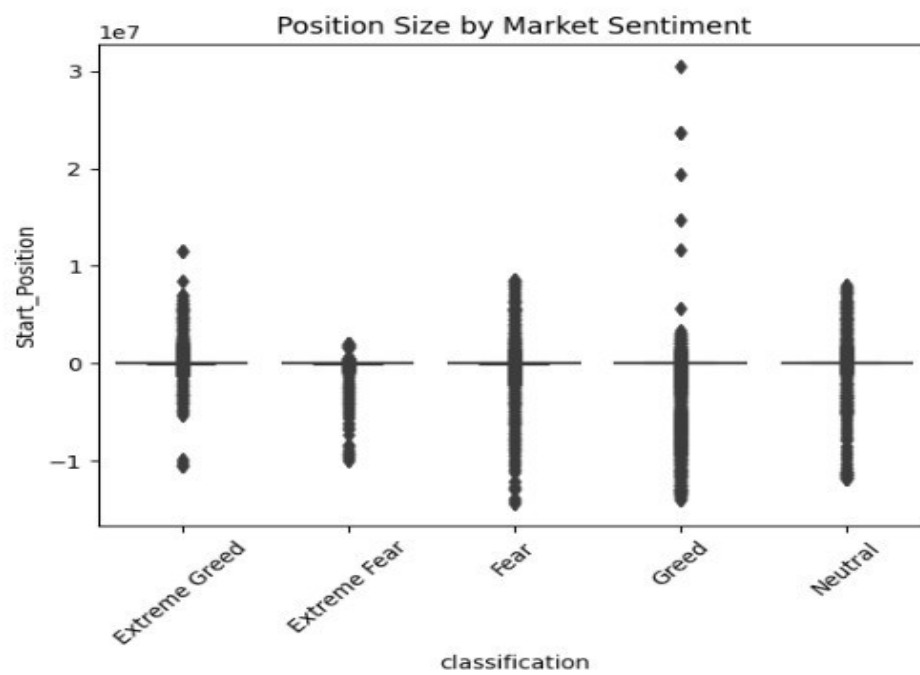


Figure 3: Position Size by Market Sentiment

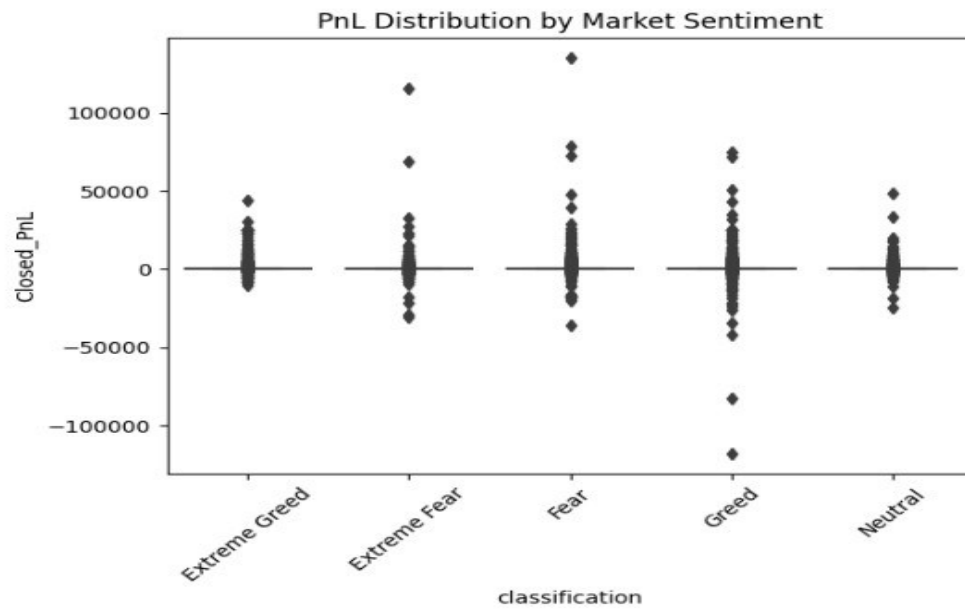


Figure 4: PnL Distribution by Market Sentiment

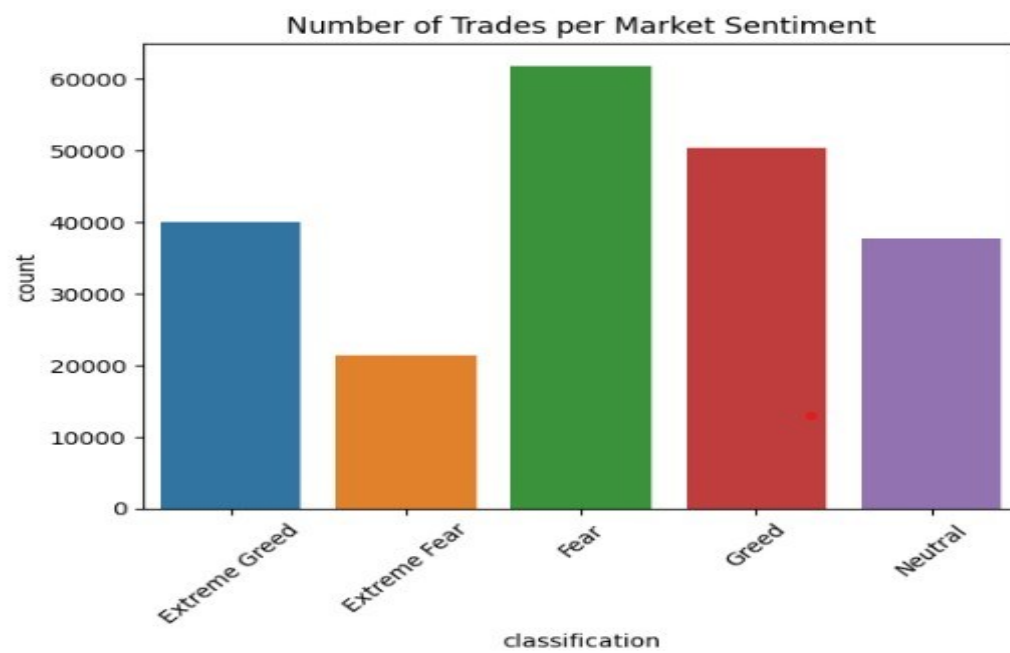


Figure 5: Number of Trades per Market Sentiment

## 6. Conclusion

Analysis shows that trader activity, position size, and profitability vary significantly between Fear and Greed market conditions. Fear periods saw the highest total volume, while Extreme Greed periods had the largest positions and highest average PnL. These findings can guide strategy adjustments based on prevailing market sentiment.