Analysis of Trader Behavior vs. Market Sentiment

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1. Executive Summary

This report analyzes the relationship between trader behavior and overall market sentiment, using historical trade data and the Fear & Greed Index. The objective was to identify trends in profitability, volume, and risk-taking that align with or diverge from periods of market fear versus greed.

The analysis reveals three key findings:

1. **Higher Profitability in Greed**: Traders in this dataset achieved significantly higher average profits during periods of market 'Greed'.
2. **Higher Volume in Fear**: Periods of 'Fear' generated substantially more trading volume and larger average trade sizes, indicating that fear is a more potent catalyst for market activity.
3. **Potential Trading Signals**: The data suggests that while greed may offer better conditions for profitability on average, fearful periods present increased market activity, which could signal opportunities for liquidity-focused strategies.

2. Methodology

The analysis was conducted by merging two key datasets: a detailed log of historical trades from Hyperliquid and a daily record of the Bitcoin Fear & Greed Index.

First, an exploratory analysis was performed on the Fear & Greed Index to understand its behavior over time. As shown in Figure 1, the index exhibits strong cyclical patterns and periods of extreme sentiment, which provides important context for the subsequent analysis of trader behavior.

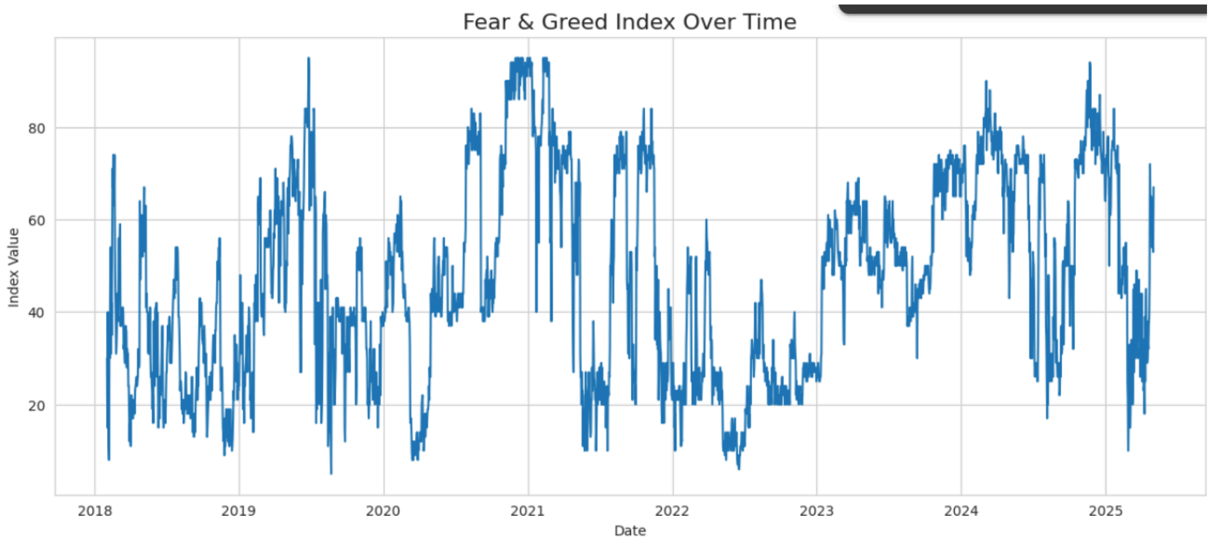

Figure 1: Fear & Greed Index Value Over Time

The datasets were then cleaned, and timestamps were converted to a unified daily format. This allowed for a joint operation to assign a daily market sentiment to each individual trade. The combined data was then segmented by sentiment ('Fear' vs. 'Greed'), and key trading metrics were aggregated for comparison.

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3. Key Findings

Finding 1: Profitability is Higher During Periods of Greed

The analysis shows a clear correlation between positive market sentiment and trader profitability.

- On days classified as **'Greed'**, the average `closedPnL` (Closed Profit and Loss) per trade was **$77.84**.
- On days classified as **'Fear'**, the average `closedPnL` per trade was significantly lower at **$50.05**.

This suggests that the trading strategies employed by the users in this dataset are more effective or that market conditions are more favorable for profit-taking during optimistic periods.

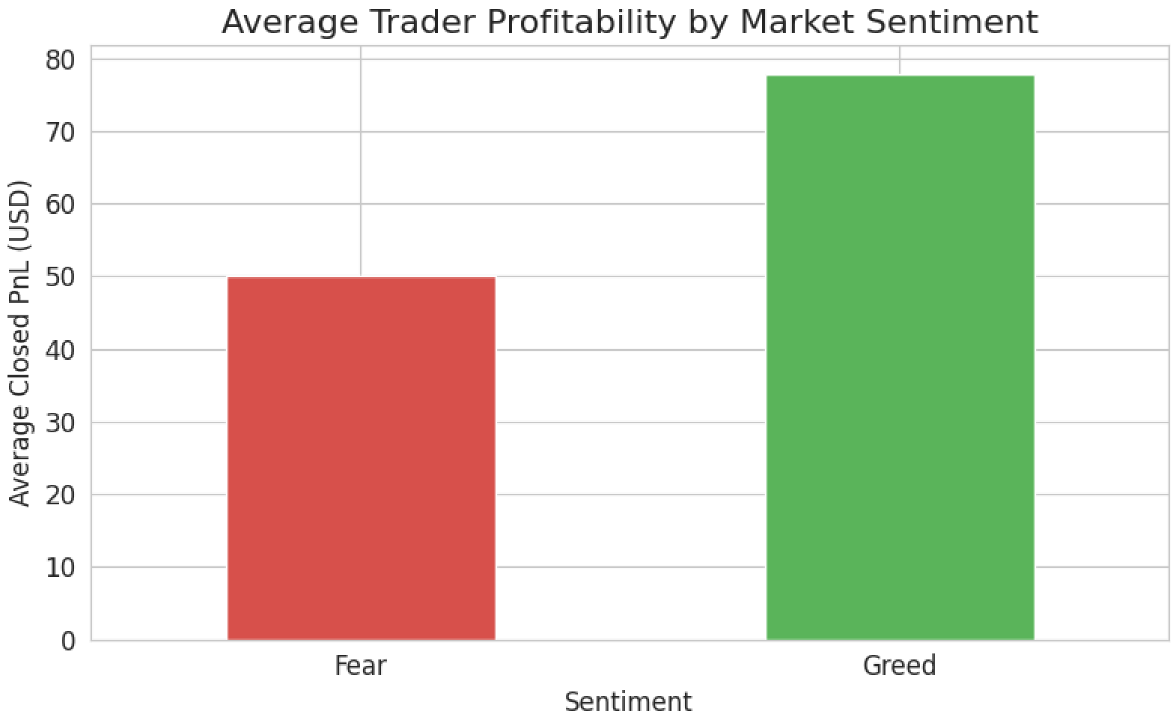

Figure 1: Average Trader Profitability by Market Sentiment

Finding 2: Market Fear Drives Significantly Higher Trading Volume

Contrary to profitability, trading activity was substantially higher during periods of fear.

- The total volume traded during **'Fear'** was over **$704 million**.
- The total volume traded during **'Greed'** was approximately **$155 million**.

This indicates that fear is a much stronger driver of trading volume. This activity could be attributed to several factors, including panic selling, liquidations, or opportunistic traders "buying the dip."

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

Finding 3: Average Trade Size Increases with Fear

Reinforcing the previous finding, the average size of an individual trade was also larger during fearful market conditions.

- The average trade size during **'Fear'** was **$5,260**.
- The average trade size during **'Greed'** was **$3,582**.

This shows that not only are there more trades during fearful periods, but the financial value of these trades is also larger on average, indicating more significant capital movement.

Figure 3: Average Trade Size (USD) by Market Sentiment

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4. Conclusion

The analysis successfully identified distinct patterns in trader behavior that correlate with market sentiment. The primary conclusion is that **Greed is correlated with higher average profitability, while Fear is correlated with higher market activity.**

This presents a potential signal for developing smarter trading strategies: while periods of greed may be optimal for profit-taking, periods of intense fear, marked by high volume and large trade sizes, could signal opportunities for strategies that thrive on volatility and high liquidity, such as market-making or arbitrage.