

# Analysis of Trader Behaviour vs. Bitcoin Market Sentiment

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## 1. Executive Summary

This report analyzes the relationship between Bitcoin trader behaviour on the Hyperliquid platform and the daily Bitcoin Fear & Greed Index. The analysis covers 26,064 'BTC' trades from December 2023 to May 2025.

My primary findings are counter-intuitive:

- **"Fear" Drives Activity:** The highest trading volume, trade count, and total profitability occurred during 'Fear' periods.
- **"Greed" Signals Inefficiency:** The 'Greed' phase was the *least* efficient, generating the lowest profit relative to the volume traded.
- **Profit is Outlier-Driven:** Profitability is not driven by consistent small wins. The median PnL (profit and loss) was \$0.00 for all sentiments, indicating that a few large, successful trades are responsible for aggregate profits.

These findings suggest that market "Fear" represents the most significant period of opportunity and activity, while "Greed" may be a signal for increased caution and risk management.

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## 2. Analytical Approach

To achieve the objective, I followed a precise 4-step process:

1. **Data Preparation:** I first loaded both datasets. The Hyperliquid trader data was filtered from 211,224 total entries down to 26,064 'BTC'-specific trades. This was a critical step to ensure a direct 1:1 comparison against the Bitcoin Fear & Greed Index.
2. **Sentiment Standardization:** The sentiment index's five categories ('Extreme Fear', 'Fear', 'Neutral', 'Greed', 'Extreme Greed') were standardized into three clear working groups: Fear, Neutral, and Greed.
3. **Data Merging:** The two datasets were merged on the 'date' column, creating a master analytic file where every BTC trade was tagged with the sentiment of its trading day.

4. **Metric Analysis:** I analyzed the key metrics requested (Profitability, Volume) by aggregating the data by sentiment. I also created a normalized metric, Profitability per \$1M in Volume, to measure trading efficiency.
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### 3. Detailed Findings

#### Finding 1: "Fear" Is the Primary Driver of Market Activity

Analysis of trading volume shows that traders are most active not during 'Greed', but during 'Fear'. This sentiment accounts for the highest total USD volume (\$337.7M) and the highest number of individual trades (11,635). 'Greed' periods saw approximately 38% less volume and 17% fewer trades.

#### Trader Profitability by Market Sentiment

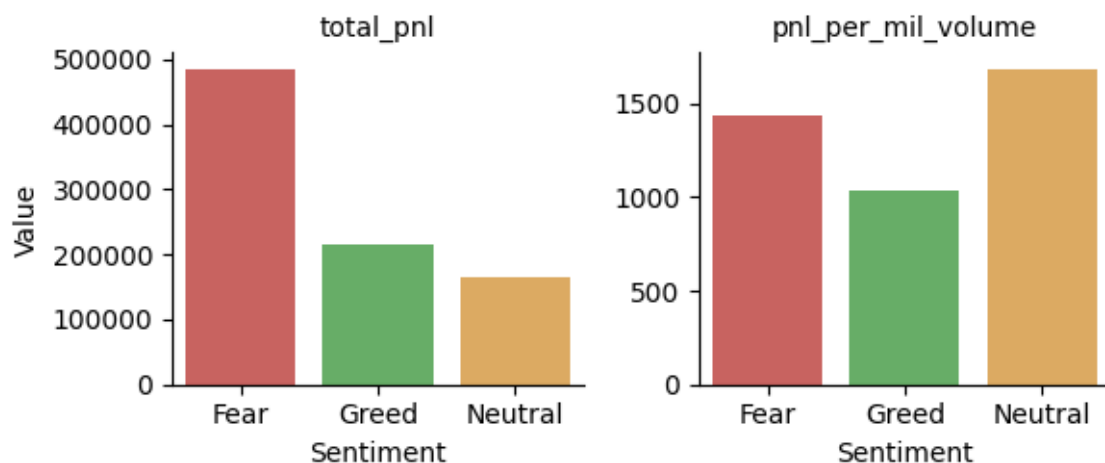


Fig. 1 Volume vs Sentiment

#### Finding 2: "Greed" Is the Least Efficient Period for Profitability

While 'Fear' also generated the highest *total* profit (\$485.7K), this is largely a function of its high volume. A more insightful metric is trading efficiency (PnL per \$1M in Volume).

My analysis shows 'Greed' is the least efficient period:

- **Neutral:** \$1,687 in PnL per \$1M Traded
- **Fear:** \$1,438 in PnL per \$1M Traded
- **Greed:** \$1,039 in PnL per \$1M Traded

## Trader Profitability by Market Sentiment

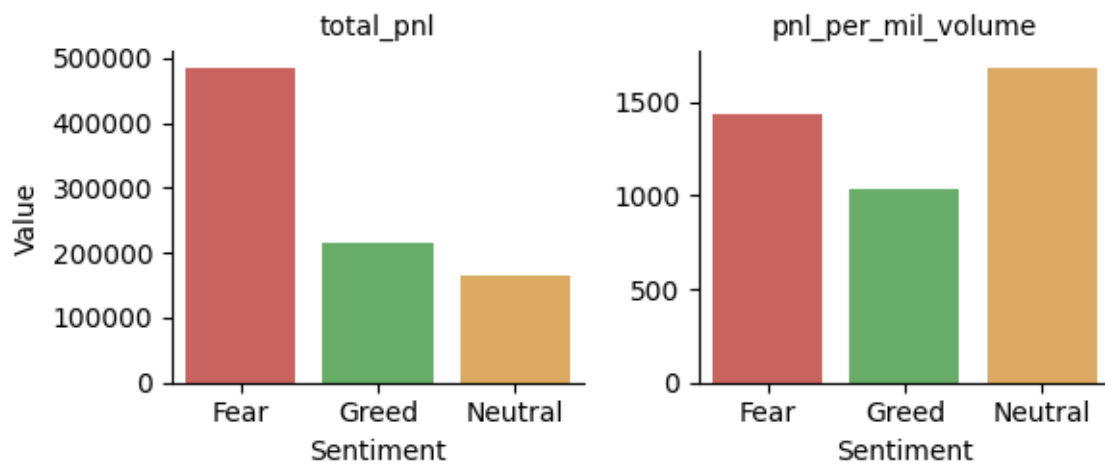


Fig. 2 Profitability vs Sentiment

### Finding 3: Profitability Is Driven by Large Wins, Not Consistency

A PnL distribution analysis reveals that for all sentiments, the median profit is \$0.00. The 25th and 75th percentiles (the "box" in the plot) are also tightly clustered around zero.

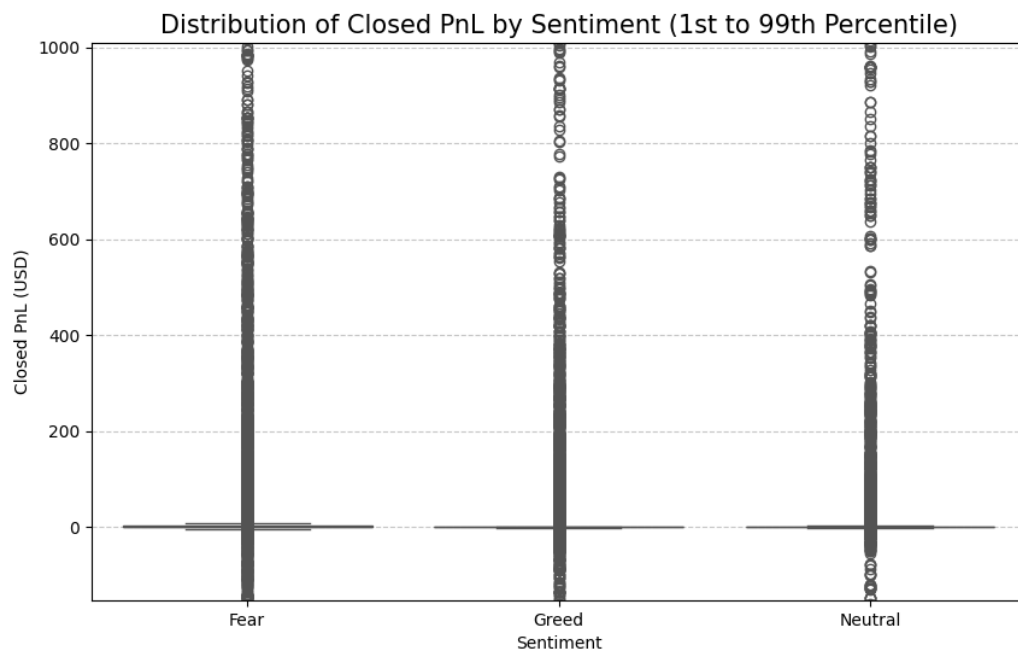


Fig. 3 PnL Distributions by Sentiments

Finding 4: Sentiment Is a Market Context, Not a Direct Daily Predictor

I conducted a correlation and time-series analysis to see if sentiment could be used as a direct daily predictor.

- 1. **Correlation:** The heatmap shows a near-zero correlation (0.06) between the daily sentiment value and the daily PnL. This confirms that a higher 'Greed' score on a given day does not mean higher profits on that day.
- 2. **Time-Series:** The time-series plot confirms this. Daily PnL is extremely volatile and does not move in lockstep with the slower-moving sentiment index.

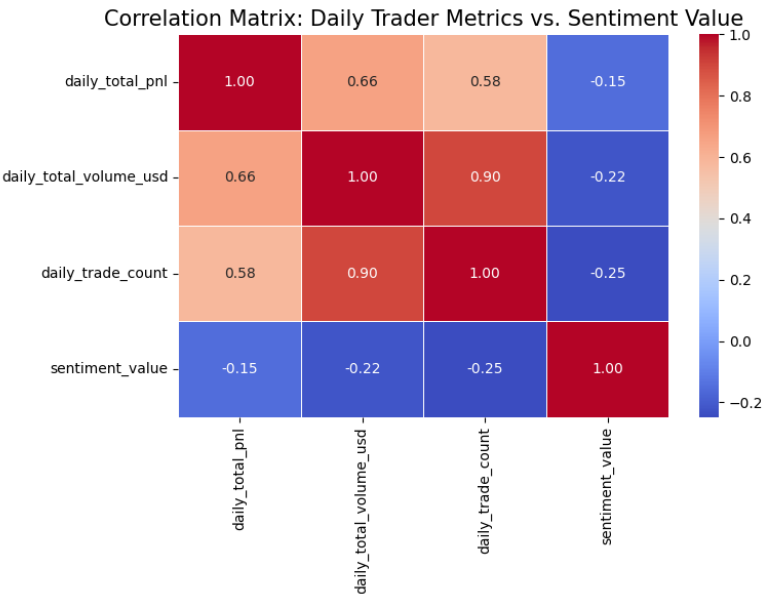


Fig. 4 Correlation Matrix

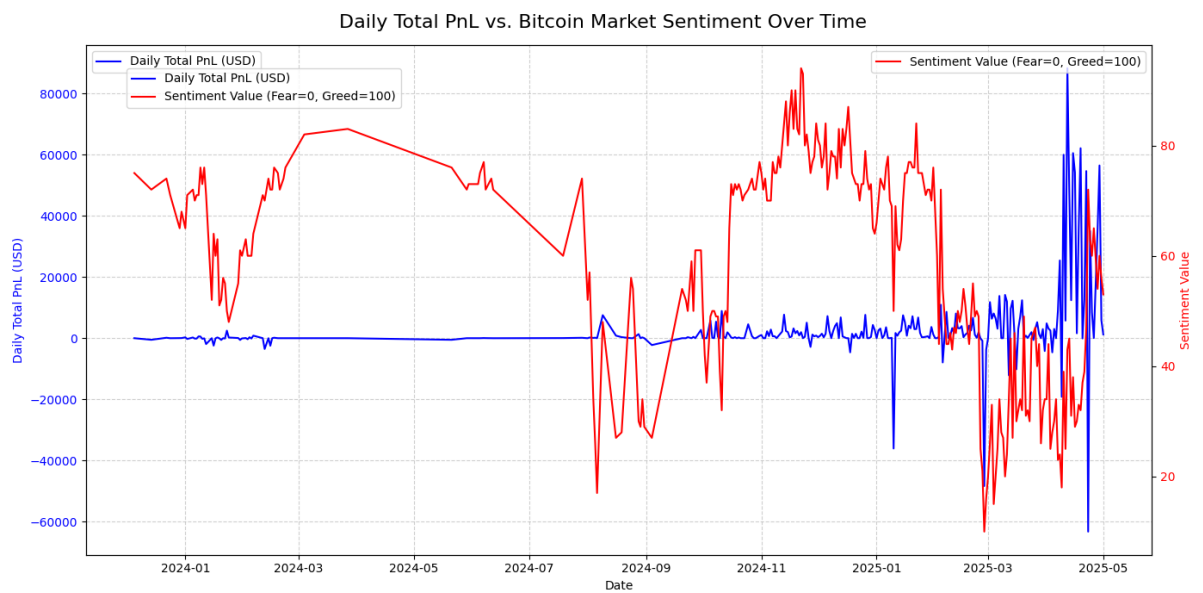


Fig. 5 Time series analysis – PnL vs BTC

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## 4. Strategic Signals & Conclusion

Based on this analysis, I have identified two actionable signals that could inform trading strategies:

1. **The Contrarian Opportunity Signal:** The fact that the highest volume and highest total profitability cluster in 'Fear' periods strongly suggests a contrarian approach. For this group of traders, the best opportunities were found when the market was most fearful.
2. **The "Greed" Risk Management Signal:** The 'Greed' phase is characterized by significant inefficiency (lowest PnL per \$1M traded). This could be used as a risk-management signal, suggesting it may be a time to reduce position sizing, be more selective, or take profits, as the marginal return on trading volume is at its lowest.

My analysis indicates that while sentiment is not a simple predictive tool, it provides a powerful context for trading activity and risk.