

TRADER BEHAVIOUR & MARKET SENTIMENT ANALYSIS

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1. INTRODUCTION

This analysis explores how trader performance relates to Bitcoin market sentiment. Using Hyper liquid historical trading records and the Fear & Greed Index, the study examines whether profitability, trade size, and win rates vary under different sentiment conditions.

2. DATASET OVERVIEW

1. Historical Trader Data

- Columns: account, symbol, execution price, size, side, Timestamp IST, Closed PnL, leverage, etc.
- Source: Hyper liquid
- Granularity: Individual trades

2. Fear & Greed Index

- Columns: date, classification (Fear, Neutral, Greed)
- Source: Alternative.me
- Granularity: Daily

3. DATA PREPARATION

- Converted timestamps (Timestamp IST) to datetime format.
- Converted sentiment date to datetime for merging.
- Merged both datasets on the date field.
- Filled missing sentiments with "Unknown".
- Renamed classification to Sentiment for clarity.

4. FEATURE ENGINEERING

- **Profit Category (PnL_Category):** Loss, Low Profit, Medium Profit, High Profit (based on Closed PnL).
- **Direction:** BUY → Long, SELL → Short.
- **Hour:** Extracted trade execution hour.
- **Win Flag:** Binary indicator for profitable trades.

5. EXPLORATORY DATA ANALYSIS

- **Sentiment Distribution**

Fear sentiment appears most frequently in the dataset.

- **PnL by Sentiment**

- Highest average PnL occurs during *Unknown* sentiment (7078.67).
- Lowest average PnL occurs during *Neutral* sentiment (34.31).

- **Trade Size by Sentiment**
Traders place the largest trades during *Unknown* sentiment (14,778.14 USD average).
- **5.4 Win Rate by Sentiment**
Win rate is highest (100%) during *Unknown* sentiment.
- **5.5 Trading Hour Trends**
Most trades occur at midnight (00:00).

6. KEY INSIGHTS

- Most common sentiment: **Fear**
- Highest average Closed PnL: **Unknown** sentiment (7078.67)
- Lowest average Closed PnL: **Neutral** sentiment (34.31)
- Highest average trade size: **Unknown** sentiment (14,778.14 USD)
- Highest win rate: **Unknown** sentiment (100%)
- Peak trading time: **00:00 hours**

7. CONCLUSION

- Fear is the dominant market sentiment across trades.
- “Unknown” sentiment days yield unusually high PnL and trade sizes — this may be due to missing sentiment data or unique market conditions.
- Neutral sentiment shows low profitability, suggesting traders might avoid aggressive positions during this sentiment.
- Midnight trading is most active; strategies could be optimized for this period.

Appendix: Visualizations



