Trader Behavior vs Market Sentiment (Fear vs Greed)

Executive Summary

This analysis looks at how trader behavior shifts during different market sentiment phases, Fear and Greed, using Bitcoin market sentiment data alongside historical trader activity. By matching daily sentiment with trades made, the study assesses profitability, risk-taking, trade size, and consistency of results. The findings show that Greed phases are linked to larger trade sizes and increased volatility, though they do not always lead to better profitability. In contrast, Fear phases usually show more cautious behavior and fairly stable outcomes. These results indicate that being aware of sentiment when sizing positions and managing risks can significantly boost trading performance.

Datasets Used

1. **Bitcoin Market Sentiment (Fear & Greed Index)**
   - Key fields: Date, Classification (Fear / Greed)
2. **Historical Trader Data (Hyperliquid)**
   - Key fields used: account, symbol, size, side, time/date field, Closed PnL

Data Preparation & Methodology

• Converted sentiment dates and trade timestamps to a common daily format.

• Merged trades with daily sentiment using the trade execution date.

• Created features: o is_profitable: whether a trade resulted in positive PnL o abs_trade_size: absolute trade size as a proxy for risk exposure

• Conducted grouped analysis by sentiment (Fear vs Greed).

• Used descriptive statistics and distribution-based visualizations (boxplots, violin plots, bar charts).

Key Findings

• Converted sentiment dates and trade timestamps to a common daily format.

• Merged trades with daily sentiment using the trade execution date.

• Created features:

o is_profitable: whether a trade resulted in positive PnL.

o abs_trade_size: absolute trade size as a proxy for risk exposure.

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• Used descriptive statistics and distribution-based visualizations, including boxplots, violin plots, and bar charts.

Trading Implications

Sentiment-Aware Position Sizing: Reduce trade size during extreme Greed to limit downside volatility.

Risk Controls During Greed: Focus on preserving capital instead of aggressive scaling.

Selective Aggression During Fear: Be conservative but selective during Fear to achieve stable returns.

These insights can help trading desks design strategies that respond to market psychology rather than using static rules.

Limitations

The lack of leverage data limits direct measurement of risk exposure.
Analysis is limited to the provided time period and instruments.
Trader-level behavior segmentation (e.g., retail vs. whales) was not examined.

Future Work

- Include leverage and margin data if available.
- Segment traders by size and experience.
- Expand analysis to multi-asset sentiment signals.
- Test sentiment-aware rules in a backtesting framework.

Conclusion

Market sentiment greatly affects trader behavior, especially regarding risk-taking and trade sizing. Greed-driven environments lead to larger, more volatile trades without proportional increases in profit. Using sentiment-aware risk management can significantly improve trading results and lessen drawdowns in real-world trading systems.